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DESCRIPTORS- *STUDY GUIDES, *TRADE AND INDUSTRIAL EDUCATION, *AUTO PARTS MEN, *MARKETING, *MOTOR VEHICLES, POST SECONDARY EDUCATION, APPRENTICESHIPS,

THE INFORMATION IN THIS STUDY GUIDE WAS DEVELOPED FOR USE IN THE RELATED TECHNICAL CLASSROOM INSTRUCTION PHASE OF THE AUTO PARTS MAN APPRENTICE TRAINING PROGRAM. THE MATERIAL WAS PLANNED UNDER THE DIRECTION OF THE STATE EDUCATIONAL ADVISORY COMMITTEE FOR THE AUTOMOTIVE TRADE. THE UNITS ARE (1) SCOPE AND OPPORTUNITY, (2) AREAS OF RESPONSIBILITY, (3) CATALOGING SYSTEMS, (4) INVENTORY AND CONTROL, (5) COUNTER SALES, AND (6) DISPLAYS THAT SELL. EACH UNIT CONTAINS STUDY TOPICS WHICH HAVE AN INTRODUCTION OF BACKGROUND INFORMATION WITH AN OUTLINE OF THE MAJOR POINTS IN QUESTION FORM, A SECTION OF RELATED INFORMATION, A STUDY GUIDE OF EXERCISES TO BE COMPLETED, AND A TEST FOR STUDENT SELF-EVALUATION. PHOTOGRAPHIC AND LINE DRAWING ILLUSTRATIONS ARE INCLUDED IN THE RELATED INFORMATION. A RECORD OF TOPICS COMPLETED MAY BE KEPT IN THE STUDY GUIDE INDEX. THE STUDY OF THIS 144-HOUR COURSE BY INDENTURED APPRENTICES ON A GROUP OR INDIVIDUAL BASIS IS TO BE DIRECTED BY A QUALIFIED JOURNEYMAN OF THE TRADE. A LIST OF REQUIRED INSTRUCTIONAL MATERIALS IS PROVIDED. TESTBOOKS AND FINAL EXAMINATIONS ARE AVAILABLE TO THE INSTRUCTORS. THIS DOCUMENT IS AVAILABLE FOR $2.00 FROM BUREAU OF INDUSTRIAL EDUCATION, CALIFORNIA STATE DEPARTMENT OF EDUCATION, 721 CAPITAL MALL, SACRAMENTO, CALIFORNIA 95814. (HC)

Auto Parts Man

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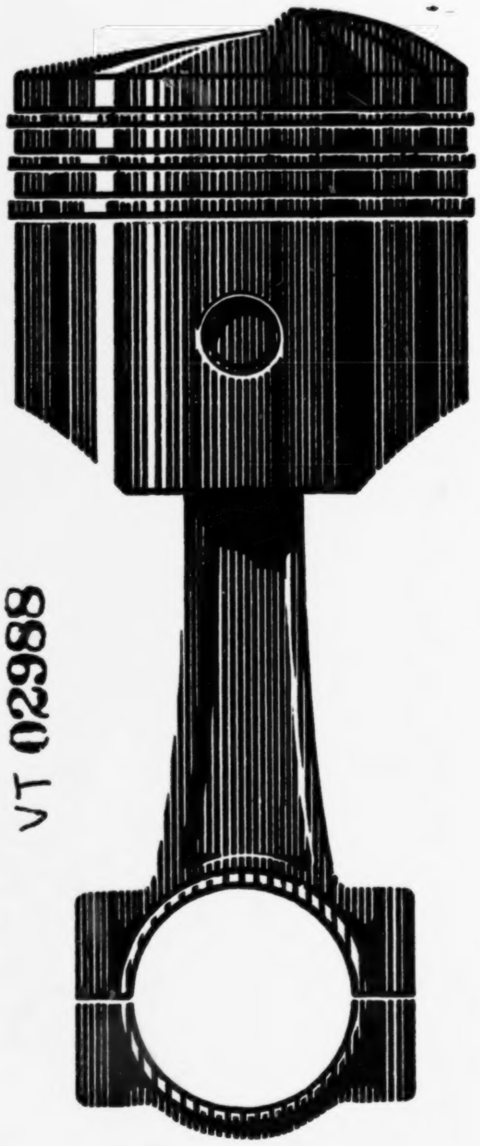

VT 029988

Workbook

CALIFORNIA STATE DEPARTMENT OF EDUCATION
Max Rafferty—Superintendent of Public Instruction
Sacramento 1967

Related Training Record

A column labeled "Assignment Date" has been provided at the right-hand side of each page in the Contents. Whenever your instructor assigns a topic, he should write this date in the appropriate blank. When you have completed the topic satisfactorily, your instructor should place his initials next to the assignment date. If this procedure has been followed, and you should transfer from one school to another, you will have an accurate record of the work you have completed. It should never be necessary for you to duplicate work on topics already studied or to skip topics not previously assigned.

In order to provide other school records needed, be sure to fill in below your name, home address, and telephone number. Then ask your instructor to fill in the official date of your enrollment in his class and to sign his name.

NAME____

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__________________________PHONE________________

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INSTRUCTOR(S)__________________________________

____

Auto Parts Man

Workbook

PREPARED UNDER THE DIRECTION OF
THE BUREAU OF INDUSTRIAL EDUCATION

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Foreword

The apprenticeship programs offered in California are important phases of the total educational program for which the state is so well known. They are also unique phases of the total program, for they offer each participant opportunity to profit from paralleled and closely related learning experiences. One of these is to learn by actually working at one's chosen vocation under the direction and supervision of men who are both trained and experienced in the vocation. The other is to learn by attending classes in which all instruction is directed toward helping one to acquire the information and understanding he needs to perform on the job intelligently and with increasing proficiency and success.

The California State Department of Education has the responsibility for developing and making available the instructional materials that are used in the related training classes. It meets this responsibility primarily through the Bureau of Industrial Education.

Every effort is being made to produce instructional materials that are appropriate and adequate. These materials should be helpful to instructors in conducting their classes and to students in doing the required learning.

Max Rafferty

Superintendent of Public Instruction

Preface

The Bureau of Industrial Education has responsibility for making available the related instructional materials required for use in the apprentice training programs offered by the various trade groups in the state. The Bureau meets this responsibility by working cooperatively with employer-employee groups representing each of these trades in determining what materials are needed and in developing those materials. This edition of Auto Parts Man was planned under the direction of the State Educational Advisory Committee for the Automotive Trades. The membership of the committee included the following representatives of employers and employees:

Representing the Employers	Representing the Employees
Robert Larimore, San Mateo	L. J. Costa, San Mateo
Roy J. Harper, Los Angeles	Mack O. Keister, Fresno
Paul Stockburger, Fresno	R. N. Fleming, San Diego

Material for this edition was written by Buel H. Dover of Berkeley. Special thanks and appreciation are extended to Sidney Leon, Auto Parts Man at Automotive Engineering, and Carl A. Johnson, Hayward Unified School District.

DONALD E. KITCH
Acting Chief,
Division of Instruction

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Chief, Bureau of
Industrial Education

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unit A • Scope and Opportunity

TOPIC 1--THE AUTO PARTS INDUSTRY

This topic, "The Auto Parts Industry," is planned to help you find answers to the following questions:

- How big is the automotive industry?
- What are the major divisions in the parts industry?
- What two general areas of the parts industry are of immediate concern to the parts apprentice?
- What are the general practices of auto parts sales organizations?

From its humble beginning before the turn of the century, the automotive industry has grown into one of the largest industries in the United States. Today, one out of every seven wage earners is connected with the automotive industry. In 1900, American manufacturers produced 4,192 automobiles. In 1963, America produced over 9 million cars, trucks, and buses. From 1900-1963, auto manufacturers in the United States produced 209 million vehicles. During 1963, vehicle registrations showed that more than 82 million of these (over one-third of all vehicles produced) remained in service.

It does not require much imagination to recognize that the auto parts industry must have grown accordingly. During 1965, car owners spent almost 4 billion dollars for replacement parts! Add to this the value of parts manufactured for assembly into new vehicles and the enormous size and potential of the automotive parts industry is apparent.

Parts Manufacturers

The huge complex of auto parts manufacturers can be divided into four general categories: (1) Auto manufacturers, who produce parts to assemble their own particular cars and trucks and who merchandise replacement parts and accessories through their agencies or dealerships; (2) subsidiaries of auto manufacturers, partly or wholly owned, whose products appear in new vehicles, on dealers shelves, and in other wholesale-retail outlets; (3) independent manufacturers who merchandise their products through franchised outlets; and (4) independent manufacturers who sell to any interested buyer.

Parts Outlets

For most auto parts apprentices, the field of opportunity narrows to two general areas: jobber-independent stores and automobile agencies (dealerships).

If we use the term "jobber-independent" in its broadest sense, it includes all wholesale-retail outlets whose main wares are replacement automotive parts. This includes U.M.S. (United Motors Service) outlets, N.A.P.A. (National Automotive Parts Association) Jobbers, and the thousands of independent wholesale-retail stores whose brands of merchandise represent all the parts manufacturers combined.

Parts departments in automobile agencies serve two purposes. They supply parts to the agency service department and sell "genuine" parts to the general trade. The agency parts department is an outlet for parts manufactured by or contracted for by the parent company. An exclusive franchise usually is granted the agency by the manufacturer, and nearly all parts sold through the agency parts department are purchased from a regional warehouse maintained by the parent firm.

General Practices

The general practices and methods used by both jobber-independents and auto agency parts departments are much the same. The only real differences are the brands of merchandise sold, the cataloging systems used, and the pricing structure followed.

Both jobber-independents and agency parts departments sell at wholesale and at retail. That is to say, both offer wholesale discounts to qualified purchasers, and both sell at retail (list) price to the general public. In both agency parts departments and jobber-independents, counter sales form a large part of the business. Jobber-independents maintain machine shops; agencies maintain service departments. Almost all jobbers and many agencies hire one or more outside salesmen. Both must employ shipping and receiving personnel, stock clerks, cashiers, counter salesmen, and bookkeepers, and both must maintain pickup and delivery services and ordering and inventory systems. Both require trained management.

Because of these many similarities, sound training can be valuable to any auto parts apprentice, whether he be employed by an independent company or by an automotive agency. The same fundamental concepts provide a foundation upon which the apprentice can build a career.

Trends in the Industry

The automotive industry (and with it the auto parts industry) is growing at an enormous rate. But the growth is not in volume alone. There are currently two major trends within the industry: (1) increased competition;and (2) increased complexity.

Makes and Models

Since 1950 there have been substantial changes among automobile manufacturers, directly due to increasing competition. Old, established lines such as Hudson and Packard have disappeared from the market. Companies have merged (Studebaker-Packard, Nash-Hudson) in order to stay alive, not because the total market has lessened but due to increased competition. The "Big Three" (General Motors, Ford, and Chrysler) lead the industry. Their aim is to saturate the market, to provide vehicles in every style and price range that the motoring public demands.

Chevrolet is a good example of this saturating effort. In 1964 the Chevrolet line contained five distinct models: Chevrolet, Corvair, Corvette, Chevy II, and Chevelle. Within each group is a full range of body styles and engine, transmission, and accessory options. There were a full-sized model, a compact, sports car, and two "in-between" models to appeal to those people who could not find what they wanted among the first three. And this is only one line of General Motors cars; there are four other lines (Pontiac, Oldsmobile, Buick, and Cadillac) to choose from! When you consider that Ford and Chrysler have a similar blanket coverage of the market, the enormous competition that exists in the automobile market can be appreciated.

Growth of the Parts Business

The large number of models available and the competition to bring new and desirable innovations to motorists has enlarged the auto parts industry almost beyond measure. The competition in the parts field is evident in the large number of new outlets that have appeared and will continue to appear. The number of legitimate wholesale-retail businesses is growing. In addition, discount houses are springing up, selling anything from a toy stuffed animal to a set of "original equipment" spark plugs, all at "wholesale" prices. The competition that presently exists within the automobile industry should not be viewed negatively. It opens up a great many opportunities, which will be discussed in the next topic.

Complexity

The increasing complexity that this competition among manufacturers has bred into the industry must be considered. To appeal to the largest possible segment of the motoring trade, manufacturers are offering more and more models and options. The options (many of which are now considered essential) are becoming more sophisticated. In 1963, intricate automatic transmissions appeared in 75.5 percent of American passenger cars produced. Four-speed transmissions and multiple carburetion, with dozens of engine options, are now universally offered. Alternators (alternating current generators) are rapidly becoming standard equipment, and a careless "testing" of the electrical circuit can burn out the alternator diodes in seconds. Power steering, power brakes, power windows, power seats, posi-traction rear axles, and a host of other complicated units constitute both a challenge and an opportunity to the auto parts trade. Replacement parts sales in this complicated field demand trained personnel in increasing numbers.

The auto parts industry today is big and complicated, competitive and industrious. Barring some national catastrophe, it cannot do anything but grow. The parts man who is well prepared cannot help but grow with it.

Study Assignment

Automobile Facts and Figures (1966) and What it Takes to Make Your Car (1964). Detroit: Automobile Manufacturers Association, Inc.

Topics for Discussion

Be prepared to discuss the following if you are asked to do so:

1. Discuss the general categories of the auto parts industry. Can you name a specific local example of each?
2. Discuss the similarities between auto agency parts departments and jobber-independent stores.
3. Discuss four or five examples of extremely complex units; e.g., transmissions, carburetors, or electric circuitry.
4. Discuss the problems an auto parts man might encounter in supplying such complex units.

UNIT A--SCOPE AND OPPORTUNITY

TOPIC 1--THE AUTO PARTS INDUSTRY - Study Guide and Test

Study Guide

After you have studied the material in the workbook and the assigned material, complete the exercises as follows: (1) select the word that belongs in each numbered space in an exercise; and (2) write that word in the space at the right that has the same number as the space in the exercise.

1. Today one out of every ___1___ wage earners is connected with the automotive industry.
   1. ____________

2. In 1965, car owners spent almost ___2___ billion dollars for replacement parts.
   2. ____________

3. Most auto parts apprentices will be employed by auto agencies or by ___3___ - ___4___.
   3. ____________
   4. ____________

4. The two current major trends in the automotive industry are ___5___ and ___6___.
   5. ____________
   6. ____________

5. The aim of the "Big Three" is to ___7___ the auto market
   7. ____________

6. The number of different models and ___8___ offered by the auto industry has greatly increased the complexity of the parts business.
   8. ____________

7. The most popular body style among U. S. automobiles is the ___9___ ___10___.
   9. ____________
   10. ____________

8. The modern serviceman is aided by using ___11___ ___12___ to analyze trouble.
   11. ____________
   12. ____________

9. The system of matching pistons, rings, connecting rods, and bearings in sets is known as ___13___ fit.
   13. ____________

10. The term jobber-independent can include wholesale-retail outlets whose principal wares are ___14___ automotive parts.
   14. ____________

Test

Read each statement and decide whether it is true or false. Circle T if the statement is true; circle F is the statement is false.

1. The value of automotive parts imported from some foreign countries exceeds the value of the motor vehicles imported from the same countries. 1. T F
2. More than one-fourth of all businesses in the United States depend on manufacture, distribution, servicing, and use of motor vehicles. 2. T F
3. Automobile manufacturers make all the parts for their cars. 3. T F
4. Jig borers accurate to within a few millionths of an inch are used in auto manufacture. 4. T F
5. Four billion dollars was spent for replacement auto parts in 1963. 5. T F
6. The parts department of an automobile service agency supplies parts only to the agency service department. 6. T F
7. The price of an auto part is the same to any buyer. 7. T F
8. Growth of the auto parts industry has not yet reached a plateau. 8. T F
9. Mergers of auto manufacturers have hurt the replacement parts business. 9. T F
10. Competition and complexity are two characteristics of the auto parts industry. 10. T F
11. Careless electrical testing can ruin an alternator. 11. T F
12. Seventy-five percent of the cars on the road today have automatic transmissions. 12. T F

UNIT A--SCOPE AND OPPORTUNITY

TOPIC 2--OPPORTUNITIES IN THE FIELD

This topic, "Opportunities in the Field," is planned to help you find answers to the following questions:

- Is there a need for trained personnel in the auto parts field?
- Can a man make a living in auto parts work?
- Are there good opportunities for advancement in the auto parts business?
- How high a job can a parts man aspire to?

As this revision of the Auto Parts Man workbook nears completion, a serious shortage of trained parts men exists in the San Francisco-East Bay area. There is good reason to believe that a similar shortage exists in many other metropolitan areas.

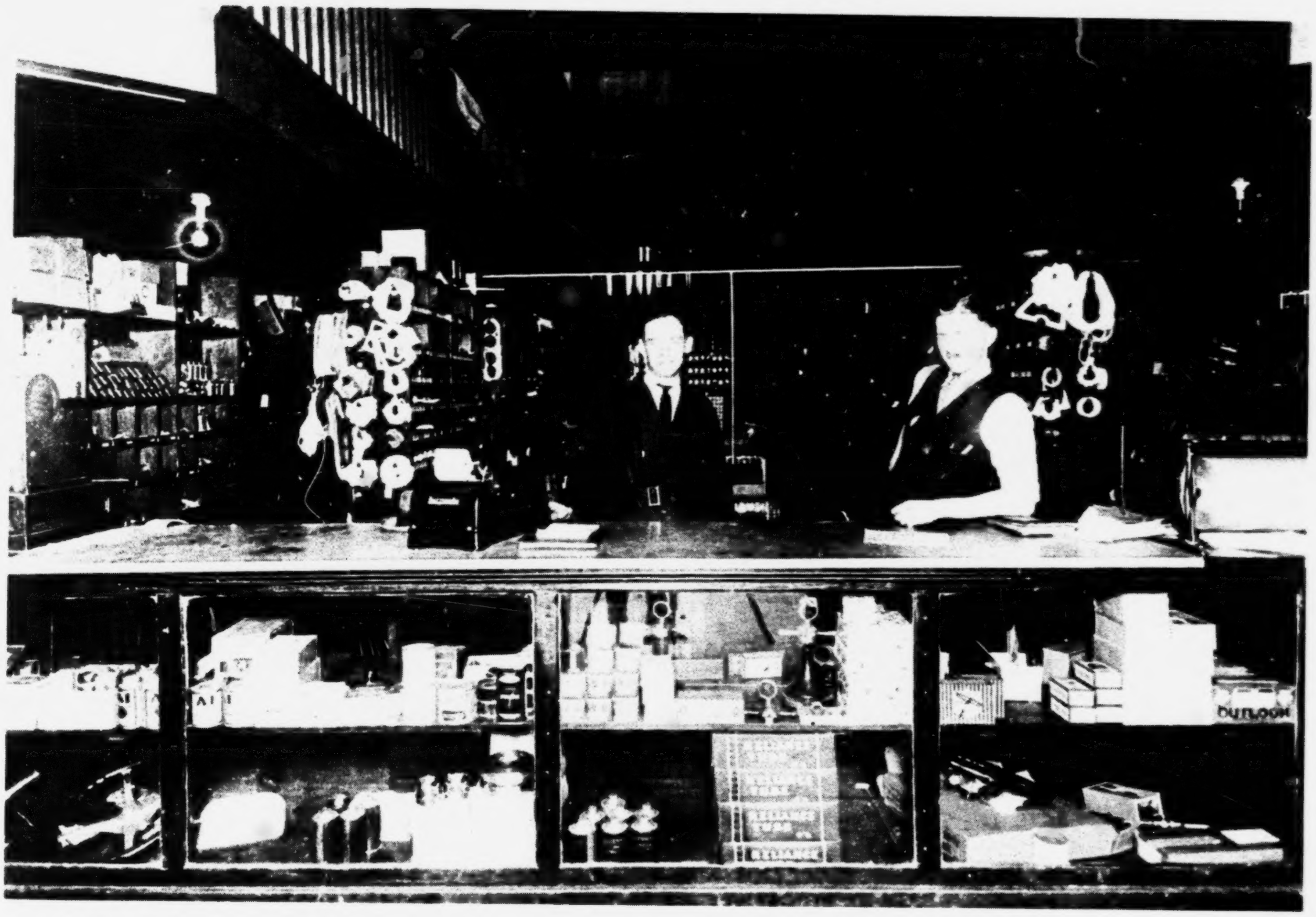
The rapid growth of the industry has created new job opportunities faster than men have been trained to fill them. Also, the lack of well-structured apprenticeship programs, the reluctance of some businessmen to enter into apprenticeship agreements, and the prevalence of a low wage scale have contributed to a shortage of competent and well-trained parts men. These conditions are rapidly improving, however, and this improvement will continue. A real and widespread need exists, and a competent parts technician can look forward to a bright future, limited only by his own initiative and ability.

Wage Scales

Wage scales for auto parts men are improving. The establishment of formal apprenticeship agreements, supervised by company and union committees, is an encouraging sign. The wage scale, which was for many years a detriment to the industry, is rising; and fringe benefits now include paid vacations, paid holidays, and insurance. With strong union support, wages should increase steadily.

Working Conditions

Actual working conditions have also improved greatly. Union agreements give the parts employee recourse for the settlement of grievances. The 40-hour work week is now almost universal in union shops. Overtime pay and premium pay for certain shifts are established.

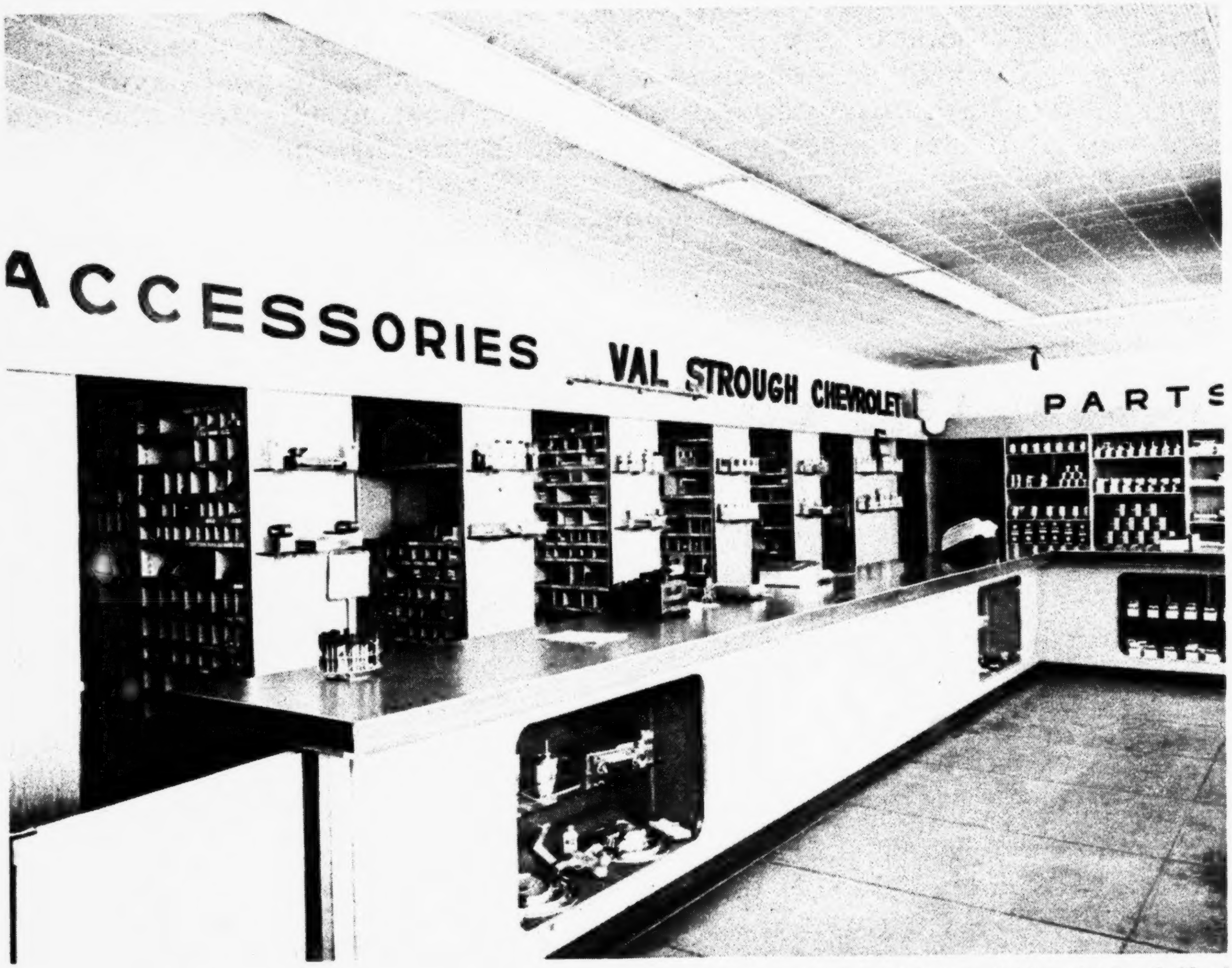


Courtesy Cochran and Celli, Oakland

Fig. A—1. A good example of a 1923 agency parts department. Most parts rooms in the early years were relegated to a dark corner of the repair shop.

For years, many parts organizations were dirty and poorly housed. But the competition and complexity which is acting to expand the field is acting to improve conditions. The volume of material presently handled, the number of items stocked, and the value and complexity of the stock have demanded new emphasis on modernizing the physical plant and working conditions. The agency parts department, once relegated to a dark corner of the service shop, is now most often an attractive and prominent part of the dealership. Jobber-independent parts stores are improving similarly. (See Fig. A-1.)

Today, most parts organizations occupy areas both clean and comfortable. Auto parts men enjoy a variety of work, a chance to meet the public, and an opportunity to form new and rewarding relationships with fellow employees and customers. The parts industry offers the apprentice a chance to progress in an interesting and growing field of endeavor. (See Fig. A-2.)



Courtesy Val Strough Chevrolet Co., Oakland

Fig. A—2. An excellent example of a modern, well-arranged, well-kept auto agency parts department.

Job Opportunities

Whatever other basic interests and skills one has, the ability to understand mechanical concepts and business practices may be enough to gain a place in the auto parts industry. The field is so diversified that it can accommodate any interested man. From the engineer who designs the part to the service man who makes the final installation in a customer's vehicle, there is a range of jobs wide enough to suit most interests. Engineer, draftsman, forger, machinist, assemblyman, cost accountant, packaging supervisor, stock control man, cataloger, shipping clerk, display man, salesman--all these fall within the realm of the auto parts industry.

A few of the specific job opportunities which exist in the automotive parts field, and related fields, are as follows:

Counter Salesman

Sales are the lifeblood of any parts organization, and most sales occur "over the counter." Counter salesman is one of the immediate goals available to the parts apprentice. Counter sales work requires mechanical knowledge and salesmanship. If one possesses or can acquire both, and if he enjoys meeting people, then he may prosper in this phase of the business. Qualified counter salesmen are almost always in demand.

Outside Salesman

The basic requirements for this job are the same as for counter sales, but the outside salesman calls on customers outside the store. A regular route is established, and new accounts are added as opportunity permits. Many prefer this type of selling to the routine of inside counter sales and work toward this specific goal. The customers called upon are varied; they include trucking firms, auto fleets, repair shops, service stations, body shops, specialty shops, and others. Outside salesmen frequently work on a salary plus commission basis, an arrangement that can bring high earnings.

Jobber Salesman

A jobber, in the strict sense of the word, is a middleman. Jobbing firms buy from manufacturers and sell to other wholesale-retail firms, who in turn sell to the general trade. To sell the large quantities of merchandise that jobbers handle, many jobber-salesmen are in the field calling on parts houses and other wholesale establishments. The volume of sales involved is large, so many jobber-salesmen earn substantial incomes. There is usually some travel involved; some sales representatives of jobbing firms cover several states. A particularly good salesman who enjoys travel may find the vocation of jobber-salesman most appealing.

Parts Manager

Every parts organization requires trained management, and the success of the business depends in large part on the ability of the manager. A manager must be something more than a clerk or a salesman. The successful manager has the ability to supervise people without alienating them; he must be competent in every phase of the business he supervises; and he must be able to plan, structure, and guide the overall effort of all members of the team. If he cannot gain the confidence of his employees and encourage their participation in the total effort, he will fail. A manager's job awaits the man who has ability to plan and to supervise.

Car Salesman

It is not unusual for men trained in the parts field to move into auto sales work. Experience in either parts or service departments provides an excellent background. The man who knows the mechanics of an automobile can do a much better job of talking about a car or truck and of demonstrating and comparing it with other makes and models.

Automotive Dealer

There are many opportunities for owning one's own business. Many parts stores, specialty shops, jobbing firms, and automobile agencies are owned by men who started their career in parts or service work.

Opportunities for Advancement

Opportunities for advancement within the auto parts industry are limited only by personal ambition, ability, and willingness to work. Some of the possibilities for advancement have been mentioned, and there are dozens of others. One very important consideration, however, needs to be stressed. The really "good" jobs will be filled by trained men--those who have seen the need and have prepared themselves accordingly.

The apprenticeship program represents a minimum of preparation. In this technical and competitive age, advantage must be taken of every academic and vocational opportunity. School courses in mathematics, science, and business are important to success. Evening courses in many subjects (academic and vocational) are offered in larger and larger numbers of high schools and junior colleges. The parts man who hopes to move up to a really responsible position in the field will prepare himself to use his total ability. School counselors will help prepare a full or part-time program of study toward this end.

Study Assignment

The Retail Automobile Business. Detroit: General Motors Corp., 1966.

Topics for Discussion

Be prepared to discuss the following topics if you are asked to do so:

1. Why might a business man hesitate to hire an apprentice?

2. Why are courses in science, mathematics, and business subjects important to the auto parts apprentice?

3. Discuss your own particular skills and interests, and try to determine where you would fit best in the auto parts industry.

UNIT A--SCOPE AND OPPORTUNITY

TOPIC 2--OPPORTUNITIES IN THE FIELD - Study Guide and Test

Study Guide

After you have studied the material in the workbook and the assigned material, complete the exercises as follows: (1) select the word that belongs in each numbered space in an exercise; and (2) write the word at the right in the space that has the same number as the space in the exercise.

1. The rapid growth of the automobile industry has ___1___ new job opportunities faster than men have been ___2___ to fill them.
1. ________
2. ________

2. A competent parts technician can look forward to a bright future, limited only by his own ___3___ and ___4___.
3. ________
4. ________

3. ___5___ scales and working ___6___ for auto parts men have improved.
5. ________
6. ________

4. The parts industry offers the apprentice a chance to ___7___ in an interesting and ___8___ field of endeavor.
7. ________
8. ________

5. The auto parts industry is so ___9___ that it can accommodate any interested ___10___.
9. ________
10. ________

6. Three sales job opportunities in the automotive parts business are ___11___, ___12___, and ___13___.
11. ________
12. ________
13. ________

7. Auto parts training can lead to jobs as ___14___ or ___15___ manager.
14. ________
15. ________

8. The apprenticeship program represents the ___16___ in the way of preparation for success in a trade.
16. ________

9. To move up to a really responsible position in any field, a man must be trained to use his ___17___ ___18___.
17. ________
18. ________

10. Education, ___19___, and many different ___20___ contribute to development of a successful career in the automotive world.
19. ________
20. ________

Test

Read each statement and decide whether it is true or false. Circle T if the statement is true; circle F if the statement is false.

1. There is a general shortage of well-trained auto parts men. 1. T F
2. Wage scales have not contributed to the shortage of parts men. 2. T F
3. Auto parts apprentices work a 35-hour week. 3. T F
4. The diversity and complexity of stocks of auto parts prevent orderly storage and display. 4. T F
5. The auto parts industry provides jobs for forgers, assemblymen, and artists. 5. T F
6. Counter sales work in the auto parts business requires good mechanical knowledge. 6. T F
7. A jobber salesman does not work for a middleman. 7. T F
8. To be a successful manager calls for knowledge of people as well as of the work they do. 8. T F
9. Training as a parts man is valuable to a truck salesman. 9. T F
10. Successful completion of an apprentice course insures reaching any top job in the trade. 10. T F

unit B • Areas of Responsibility

TOPIC 1--FILLING AND SHIPPING ORDERS

This topic, "Filling and Shipping Orders," is planned to help you find answers to the following questions:

- How is a replacement parts order filled?
- What action is taken with respect to an order for a part not in stock?
- What item is always packed with the order?
- Are shipping rules the same for all carriers?
- Why are some shipments made C.O.D.?

As his first task, the new apprentice in the auto parts business is frequently assigned to the position of helper in the shipping and receiving department. In this position, he may package merchandise for shipment, receive and check merchandise, stock the bins, or more than likely, perform a combination of all three. For this reason the student is urged to read through the first three topics of this unit before beginning his detailed study of each. All three are closely related. The instructor may wish to rearrange the order of study of these three topics (B1, 2, and 3) into a pattern which best fits the student's on-the-job assignment. But in any case the reading assignment should be carried out, since the relationship holds regardless of the pattern of study.

Parts men in automotive dealerships are not usually called upon to ship as much merchandise as are parts men in specialty or jobbing houses. However, all workers, regardless of the branch of the auto parts trade in which they are employed, should be familiar with the basic steps in filling orders and preparing them for shipment.

Filling Orders

The first step in filling an order is to examine the order carefully to get a general idea of the size and nature of the parts ordered. The shipper can thus form an idea of the cartons and packagings necessary and can determine a route to follow through the department so that filling the order can be done as quickly and efficiently as possible.

"Picking" the order is best done with the aid of an order cart or, in the case of a smaller order, a carton of appropriate size. As each item is located, the items are counted carefully into the container and are checked for quantity and part number against the order form. Appropriate check marks are made beside each filled quantity; if shortages occur or back orders are necessary, the order is marked accordingly. Before "shorting" an order (i.e., marking any items missing), other storerooms and overstocks (frequently found on the tops of bins) are checked for the needed merchandise.

When the order is completed, it is taken to the shipping desk or department where it is rechecked prior to final packaging. If shortages are noted on the order, these items are checked against the inventory cards to ensure that stock has not been overlooked. If missing parts are on order, the approximate date the customer may expect to receive the merchandise is indicated on his order form. In case any part ordered has been superseded, both old and new part numbers should be shown on the order, with an explanation of the change.

It may be necessary in some cases to make substitutions on an order. If the brand specified is not available, or if a component part is ordered when only a complete assembly containing the component is available, then the shipper should obtain permission from the customer to make the necessary substitution. Brand name substitutions occur frequently in jobbers stocks. Some brands carry their own numbering system, while others are stocked under original equipment numbers. In any case, permission should be obtained from the customer before making any substitutions, especially if substantial differences in price are involved.

When any of the parts ordered cannot be delivered with the bulk of the order, a back order (order for future delivery) is entered, providing the customer will accept back orders. If a back order is approved, the appropriate form is made out and placed in the action files, and the material is delivered or shipped as soon as stock is available.

Packing

Packing and preparing merchandise for shipment requires the proper selection of containers, arrangement of contents, and labeling. Some heavy or bulky items require only attachment of shipping tags or labels. Ordinary parts should be arranged in cartons of suitable size and strength. Careful attention to the placement of items in a carton will save space and minimize the danger of damage due to shifting contents. Heavy items should never be packaged with other items subject to breakage. Special separate packaging should be used for glass, mouldings, gauges, and other fragile items. All empty spaces in cartons are filled with excelsior or other cushioning material, paying special attention to glass and fragile items.

After the packing slip is placed in the carton, the carton is stapled, tied, or glued firmly closed. Sealing tape is adequate for most cartons, but if the carton is unduly heavy, steel bands or strong twine may be necessary. If more than one carton is involved in the shipment, the carton in which the packing slip has been placed is marked "Packing Slip Enclosed."

Labels are of two principal types--the gummed label which is glued directly to the package and the tie-on label which is tied or wired to the package or bundle. The same basic information should be contained on each. The required information is printed or stamped clearly on the label, so that the name and address of both shipper and customer are plainly legible.

Shipping Regulations

Shipping regulations differ among the various carriers, and the shipping clerk must be acquainted with the rates, packaging limitations, schedules, and delivery points of each carrier. Instructions for routing the shipment are sometimes given with the order; if not, the shipper must select the mode of transportation which will give the customer the fastest and most economical service.

Parcel Post

Packages sent by mail to a customer are normally sent as fourth class mail, which includes most merchandise from one to 70 pounds in weight as well as certain other mailable matter. The regulations governing the allowable weights and sizes of fourth class mail are somewhat complex and change from time to time. Every shipping activity should have a copy of the latest rules at hand and should periodically check with the local postal authorities for changes.

Current general rules include the following:

- The package must bear the name and address of the sender, preceded by "From," as well as that of the addressee. The use of Zip codes is encouraged.
- The package must be susceptible of postal inspection.
- A written or printed invoice or bill, with necessary identifying or descriptive data may be enclosed. Letters may not be enclosed unless special notation is made and additional postage paid.
- Mailing explosives and flammable substances is generally prohibited.

The use of air parcel post, while more costly, sometimes affords a means of meeting a delivery deadline otherwise impossible. Size and weight regulations for air mail are somewhat different from those covering surface mail; the local postoffice should be consulted.

Stage (Bus) Regulations

Local or interline shipments are accepted for transportation, either prepaid or collect, by most stage companies to any stations on their scheduled route. All shipments must be packed in containers made of material of such strength and durability as to withstand handling, stacking, strapping, or rubbing against baggage racks. All packages containing fragile articles must be plainly so marked. The name and address of shipper and consignee must be shown plainly on all packages.

Because of the nature or contents of the package, the following automotive items are not normally accepted for bus transportation: acids, wet batteries, gases in cylinders, flammable thinners, and certain paints. Limitations on the weight and size of each package vary with different bus companies. If a package exceeds 100 pounds, the shipper should check with the company to see if it is acceptable.

Trucking Companies and City Delivery Services

Most trucking companies and city delivery services have similar rules for packaging, sealing, and labeling. However, the limitations on size, weight, and type of material carried are not as strict as postal or bus regulations. The shipper is advised to check with individual companies as to their specific regulations.

Shipping Forms

After the appropriate means of transportation has been selected, a bill of lading should be prepared. Information entered on the bill of lading includes the number of packages shipped, the total weight of the packages, and whether the shipment is prepaid or C.O.D. The form is made out in duplicate or triplicate so that a copy can be filed for future reference in case of damage to or loss of the shipment.

Insured and C.O.D. Shipments

The Post Office Department and most transportation companies provide for both insured and C.O.D. shipments. Insurance against loss or damage may be obtained for an amount equivalent to the actual value of the merchandise, up to a stated maximum per parcel. A firm making many shipments regularly may obtain a post office form book and originate insured shipments from its place of business.

C.O.D. service is utilized when the shipper does not desire to extend credit or when customers do not wish to establish credit or pay in advance. Postal C.O.D. service is especially useful due to the wide area serviced, the low fees, and the prompt receipt of collections. The C.O.D. form book furnished by the post office is the same one used for insured packages. All postal C.O.D. packages are marked with serial numbers assigned by the post office to each firm and are registered in the form book by the firm sending the package, with a duplicate made for the post office department. These numbers are used to identify insured packages and money orders in payment of C.O.D. shipments.

UNIT B--AREAS OF RESPONSIBILITY

TOPIC 1--FILLING AND SHIPPING ORDERS - Study Guide and Test

Study Guide

After you have studied the material in the workbook and the assigned material, complete the exercises as follows: (1) select the word that belongs in each numbered space in an exercise; and (2) write the word at the right in the space that has the same number as the space in the exercise.

1. The new parts apprentice is frequently assigned to the ___ 1 ___ and ___ 2 ___ department.
   1. ________
   2. ________

2. All parts employees should be familiar with the steps to be followed in ___ 3 ___ and ___ 4 ___ orders for shipment.
   3. ________
   4. ________

3. An order should be examined beforehand to determine a(n) ___ 5 ___ to be followed through the department in filling the order.
   5. ________

4. Before "shorting" an order, both ___ 6 ___ and ___ 7 ___ should be checked.
   6. ________
   7. ________

5. Permission should always be obtained from the ___ 8 ___ before making substitutions on an order.
   8. ________

6. Careful attention to the ___ 9 ___ of items in a carton will save space and minimize the danger of ___ 10 ___ due to shifting contents.
   9. ________
   10. ________

7. After the ___ 11 ___ ___ 12 ___ is placed in the carton, the carton is firmly closed.
   11. ________
   12. ________

8. Shipping ___ 13 ___ differ among the various carriers.
   13. ________

9. Instructions for ___ 14 ___ the shipment are sometimes with the order.
   14. ________

10. Packages sent by mail are usually sent ___ 15 ___ class.
    15. ________

11. All parcel post shipments are subject to ___ 16 ___ by postal authorities.
    16. ________

12. Postal regulations allow both 17 and 18 shipments.

17. ________
18. ________

13. The C.O.D. service is used when the shipper does not want to extend 19, or customers do not want to pay in 20.

19. ________
20. ________

Test

Read each statement and decide whether it is true or false. Circle T if the statement is true; circle F if the statement is false.

1. The last assignment of the apprentice auto parts man before his graduation will be to the shipping department. — 1. T F
2. Parts men in dealerships do less shipping than those in jobber firms. — 2. T F
3. The order in which parts are gathered to fill an order has no significance. — 3. T F
4. Apparent shortages are checked against inventory cards. — 4. T F
5. If an item is on back order, the customer is notified that it will be sent sometime in the future. — 5. T F
6. Substitutions should never be made. — 6. T F
7. Many items are shipped without packaging them. — 7. T F
8. The packing slip should be mailed the same day the order is shipped, never earlier. — 8. T F
9. Zip codes are used on letters only, not packages. — 9. T F
10. Wet batteries are not normally accepted for shipment by stage lines. — 10. T F
11. The list price is always found on the bill of lading. — 11. T F
12. The Post Office Department offers insurance on packages mailed up to the total value of the contents. — 12. T F

UNIT B--AREAS OF RESPONSIBILITY

TOPIC 2--RECEIVING

This topic, "Receiving," is planned to help you find answers to the following questions:

- What are the various forms commonly associated with receiving goods into stock?
- What is the function of "packing slips?"
- How does a bill of lading differ from a shipping receipt?
- What inspections are made of merchandise received?
- Who reimburses the receiver when damaged items are received?

One of the earliest tasks assigned the apprentice auto parts man may well be helping to receive shipments into the department and to store them properly. He should become very familiar with the forms, terms, and procedures commonly used in connection with the receipt of merchandise. A great deal of the knowledge required of the parts man will be acquired through his participating in receiving activities.

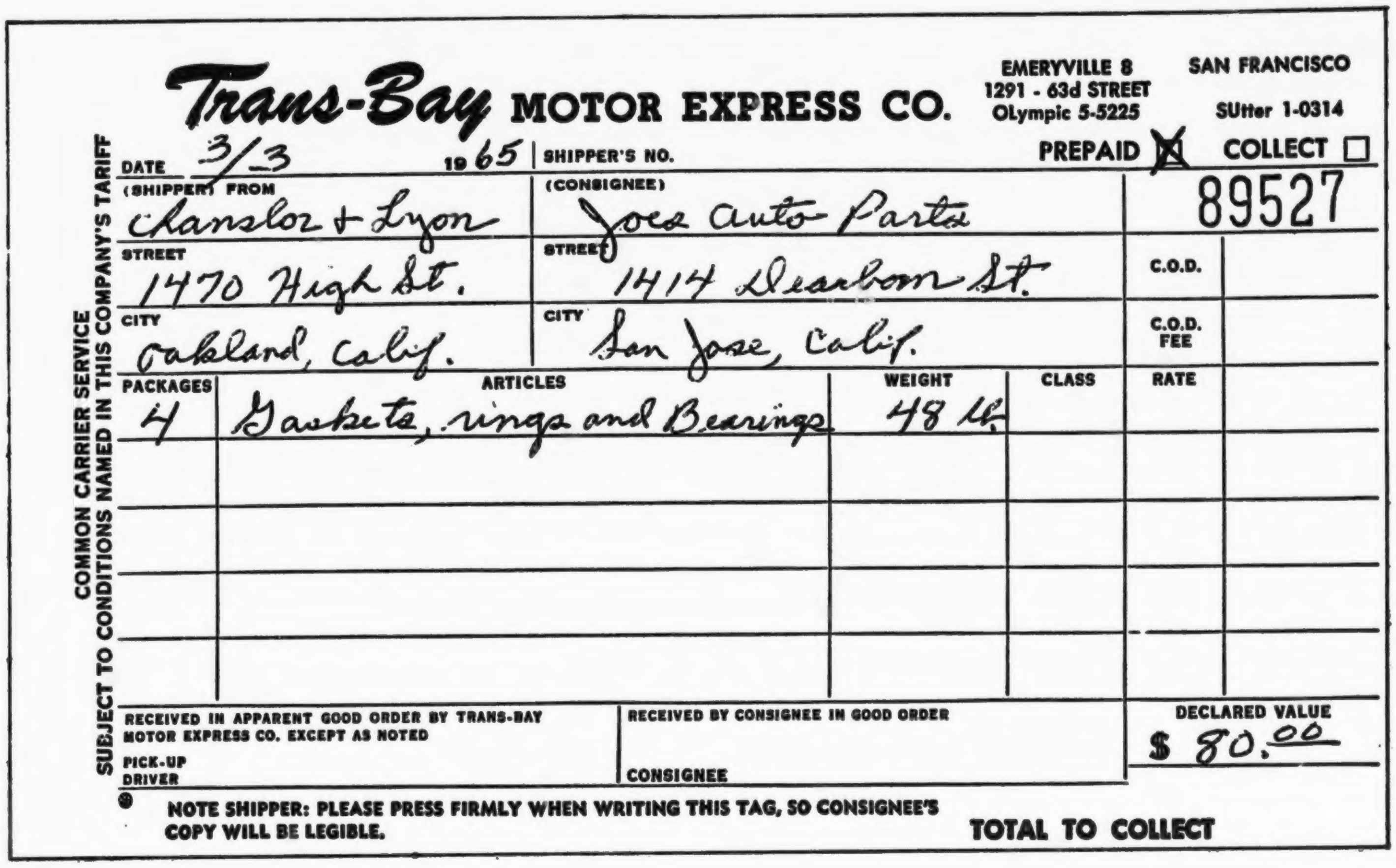
Forms

A shipping receipt lists the number of packages, the nature of their contents, and the weight of a shipment that is to be delivered by a transportation company. The method of payment for the delivery is also indicated (i.e., C.O.D., Collect, Prepaid). The receipt should be filled out in detail to avoid confusion. A description of the merchandise, the name of the shipper, and the name and address of the firm to whom the merchandise is being shipped must be listed on the receipt. (See Fig. B-1.)

The packing slip is an itemized list of the articles included in a package or in a group of packages shipped together. The packing slip may be inserted in one of the cartons, or it may be found in an envelope marked "Packing Slip" stapled or glued to one of the packages. When a large shipment is being unloaded, it is a good idea to watch for the package marked "Packing Slip" and set it apart from the others. (See Fig. B-2.)

An invoice is similar to a packing slip in that it lists the parts by number and description. In addition, it shows the price per item and the total price of shipment. The invoice is usually sent by mail. In some cases the invoices are received before the shipment, but more often the invoice is mailed to the buyer after the shipment has been received. (See Fig. B-3.)

A bill of lading, issued by the transportation company, acknowledges receipt of goods from the shipper. It contains the total number and a description of the packages to be shipped, along with the shipping instructions. (See Fig. B-4.)



Trans-Bay MOTOR EXPRESS CO.

EMERYVILLE 8
1291 - 63d STREET
Olympic 5-5225

SAN FRANCISCO
SUtter 1-0314

SUBJECT TO CONDITIONS NAMED IN THIS COMPANY'S TARIFF
COMMON CARRIER SERVICE

DATE 3/3 1965 SHIPPER'S NO.

PREPAID ☒ COLLECT ☐

89527

(SHIPPER) FROM Chanslor + Lyon
STREET 1470 High St.
CITY Oakland, Calif.

(CONSIGNEE) Joes Auto Parts
STREET 1414 Dearborn St.
CITY San Jose, Calif.

C.O.D.
C.O.D. FEE

PACKAGES	ARTICLES	WEIGHT	CLASS	RATE
4	Gaskets, rings and Bearings	48 lb.		

RECEIVED IN APPARENT GOOD ORDER BY TRANS-BAY MOTOR EXPRESS CO. EXCEPT AS NOTED
PICK-UP DRIVER

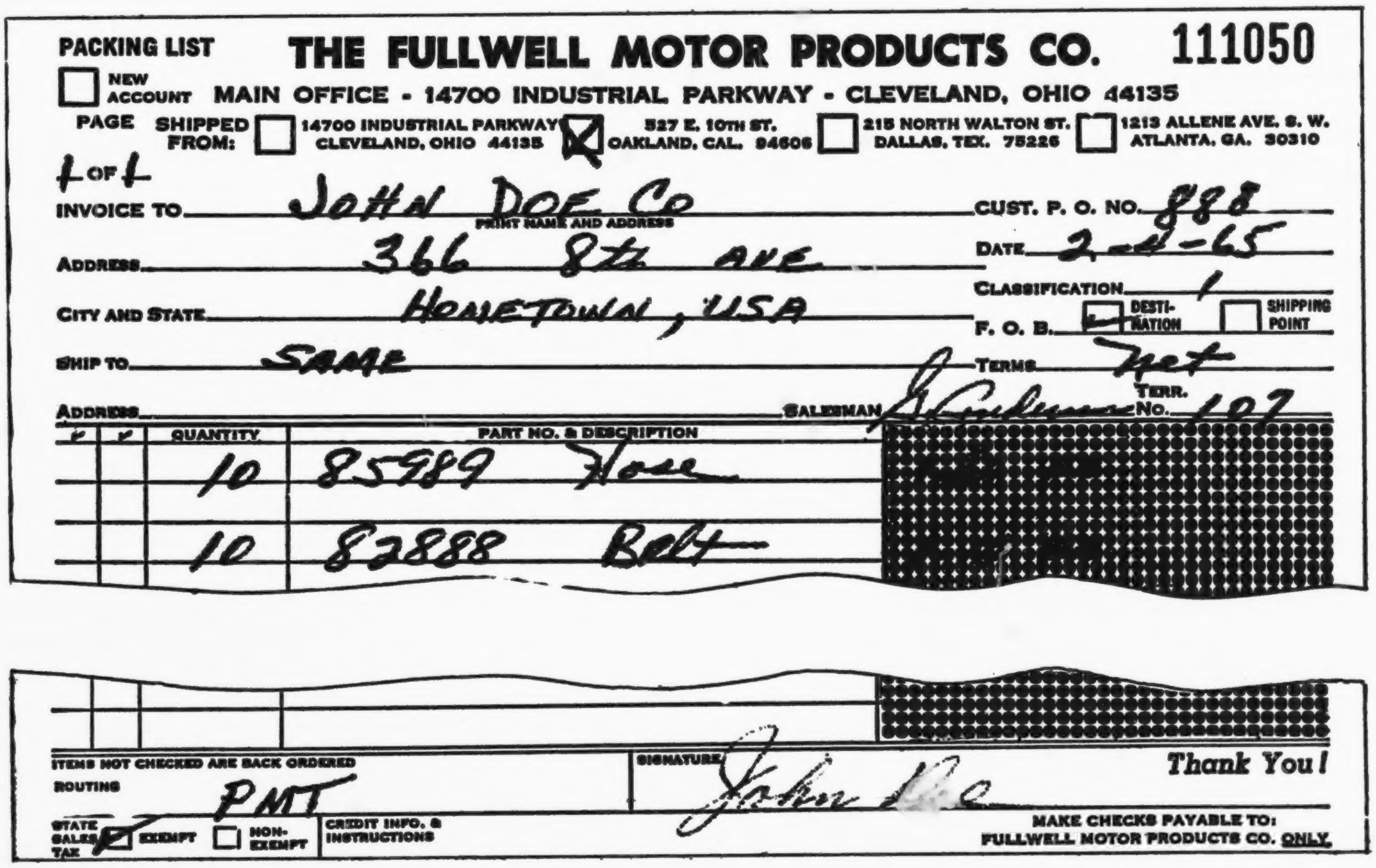
RECEIVED BY CONSIGNEE IN GOOD ORDER
CONSIGNEE

DECLARED VALUE $ 80.00

NOTE SHIPPER: PLEASE PRESS FIRMLY WHEN WRITING THIS TAG, SO CONSIGNEE'S COPY WILL BE LEGIBLE.

TOTAL TO COLLECT

Fig. B—1. A shipping receipt



PACKING LIST **THE FULLWELL MOTOR PRODUCTS CO.** 111050

☐ NEW ACCOUNT

MAIN OFFICE - 14700 INDUSTRIAL PARKWAY - CLEVELAND, OHIO 44135

PAGE 1 OF 1

SHIPPED FROM: ☐ 14700 INDUSTRIAL PARKWAY CLEVELAND, OHIO 44135 ☒ 527 E. 10TH ST. OAKLAND, CAL. 94606 ☐ 215 NORTH WALTON ST. DALLAS, TEX. 75226 ☐ 1213 ALLENE AVE. S. W. ATLANTA, GA. 30310

INVOICE TO JOHN DOE CO (PRINT NAME AND ADDRESS)
ADDRESS 366 8th AVE
CITY AND STATE HOMETOWN, USA
SHIP TO SAME
ADDRESS

CUST. P. O. NO. 888
DATE 2-2-65
CLASSIFICATION 1
F. O. B. ☑ DESTINATION ☐ SHIPPING POINT
TERMS Net
SALESMAN
TERR. NO. 107

✓	✓	QUANTITY	PART NO. & DESCRIPTION
		10	85989 Hose
		10	82888 Belt

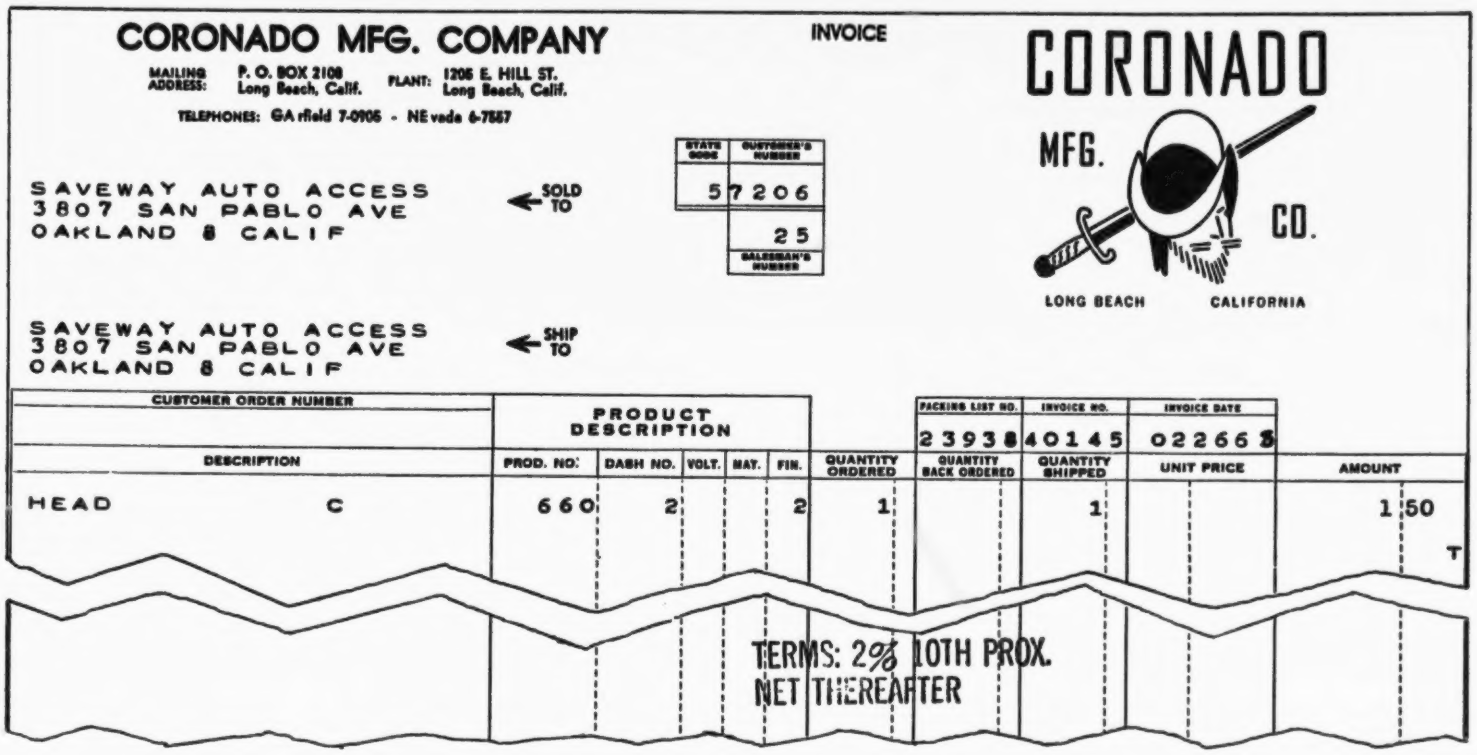
ITEMS NOT CHECKED ARE BACK ORDERED
ROUTING PMT
STATE SALES TAX ☑ EXEMPT ☐ NON-EXEMPT
CREDIT INFO. & INSTRUCTIONS

SIGNATURE John Doe

Thank You!

MAKE CHECKS PAYABLE TO: FULLWELL MOTOR PRODUCTS CO. ONLY.

Fig. B—2. A packing slip



CORONADO MFG. COMPANY

INVOICE

MAILING ADDRESS: P. O. BOX 2108 Long Beach, Calif. PLANT: 1205 E. HILL ST. Long Beach, Calif.

TELEPHONES: GArfield 7-0905 - NEvada 6-7557

CORONADO MFG. CO.
LONG BEACH CALIFORNIA

STATE CODE	CUSTOMER'S NUMBER
5	7206
	25
	SALESMAN'S NUMBER

SAVEWAY AUTO ACCESS
3807 SAN PABLO AVE
OAKLAND 8 CALIF
← SOLD TO

SAVEWAY AUTO ACCESS
3807 SAN PABLO AVE
OAKLAND 8 CALIF
← SHIP TO

CUSTOMER ORDER NUMBER

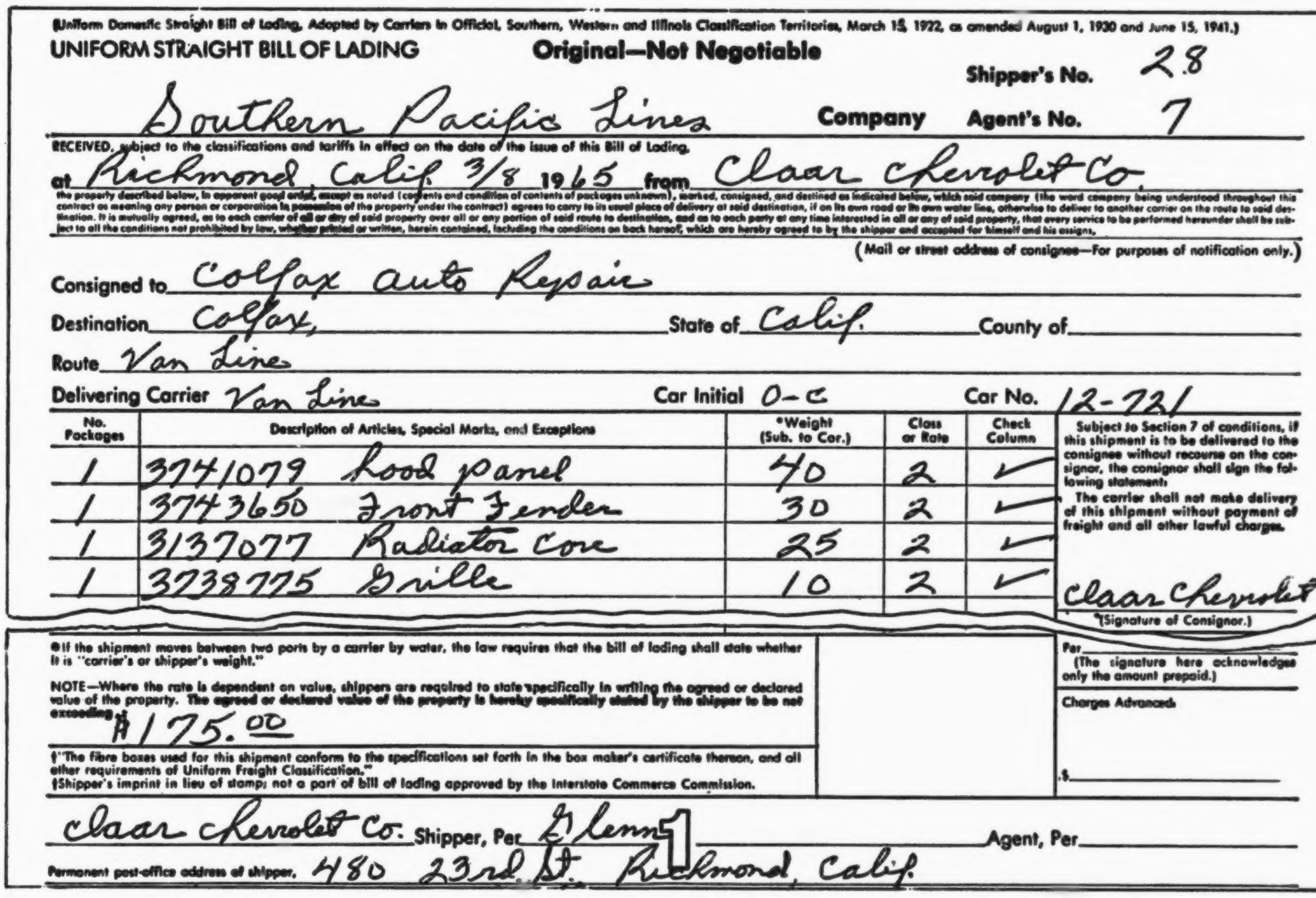
PACKING LIST NO.	INVOICE NO.	INVOICE DATE
23938	40145	022665

DESCRIPTION	PRODUCT DESCRIPTION PROD. NO.	DASH NO.	VOLT.	MAT.	FIN.	QUANTITY ORDERED	QUANTITY BACK ORDERED	QUANTITY SHIPPED	UNIT PRICE	AMOUNT
HEAD C	660	2			2	1		1		1 50

T

TERMS: 2% 10TH PROX.
NET THEREAFTER

Fig. B—3. An invoice



(Uniform Domestic Straight Bill of Lading, Adopted by Carriers in Official, Southern, Western and Illinois Classification Territories, March 15, 1922, as amended August 1, 1930 and June 15, 1941.)

UNIFORM STRAIGHT BILL OF LADING **Original—Not Negotiable**

Shipper's No. 28

Southern Pacific Lines Company Agent's No. 7

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading,

at Richmond, Calif. 3/8 1965 from Claar Chevrolet Co.

the property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own road or its own water line, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the conditions not prohibited by law, whether printed or written, herein contained, including the conditions on back hereof, which are hereby agreed to by the shipper and accepted for himself and his assigns.

(Mail or street address of consignee—For purposes of notification only.)

Consigned to Colfax auto Repair

Destination Colfax, State of Calif. County of

Route Van Lines

Delivering Carrier Van Lines Car Initial O-C Car No. 12-721

No. Packages	Description of Articles, Special Marks, and Exceptions	*Weight (Sub. to Cor.)	Class or Rate	Check Column
1	3741079 hood panel	40	2	✓
1	3743650 Front Fender	30	2	✓
1	3137077 Radiator Core	25	2	✓
1	3738775 Grille	10	2	✓

Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:

The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

Claar Chevrolet
(Signature of Consignor.)

*If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight."

NOTE—Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property. The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding $175.00

†"The fibre boxes used for this shipment conform to the specifications set forth in the box maker's certificate thereon, and all other requirements of Uniform Freight Classification."

‡Shipper's imprint in lieu of stamp; not a part of bill of lading approved by the Interstate Commerce Commission.

Per
(The signature here acknowledges only the amount prepaid.)

Charges Advanced:

$

Claar Chevrolet Co. Shipper, Per Glenn Agent, Per

Permanent post-office address of shipper. 480 23rd St. Richmond, Calif.

Fig. B—4. A bill of lading

Kinds of Shipments

A prepaid shipment is a shipment on which the transportation charges are paid by the shipper. On a C.O.D. shipment, both the cost of the merchandise and the shipping charges are paid by the receiver at the time the merchandise is delivered. A collect shipment requires payment of only the transportation charges by the receiver at the time of delivery.

Accepting Merchandise

When a shipment of merchandise is accepted from a transportation company or service, there are two fundamental rules to be observed. First, the number and type of containers received are checked against the number and types of packages listed on the shipping receipt or the bill of lading. Second, the address on each is verified to avoid delay and confusion caused by accepting the wrong merchandise.

Before the shipping receipt is signed, each package is inspected for damage. Cartons which show evidence of crushing, especially those marked "glass" or "fragile," should be opened immediately for inspection. Any shortages or damage must be noted on the shipping receipt and acknowledged in writing by the person who is delivering the merchandise. If the shipment is found to be complete and in good order, the shipping receipt need only be signed and dated by the receiver.

Filing Claims

If a loss or damage is detected after the driver for the transportation company has gone, the local representative of the transportation company should be notified immediately, and the shipment should be set aside pending investigation and settlement of the claim. All claims for shortages and damages should be filed promptly to prevent costly delays in settlement.

If the damaged shipment was prepaid, the company or dealer who shipped the merchandise should also be notified so that they can file a claim against the transportation company. If the shipment was paid for by the company receiving the goods, it is the responsibility of the individual accepting the merchandise to see that notice of any damage or shortage is given to the person in his company responsible for filing and settling claims.

The above procedure is used in all cases when the shortage or damage may be attributed to the transportation company's manner of handling and shipment. If, however, discrepancies are found between the quantity of items in the packages and the quantity listed on the packing slip, or if concealed damage is found that resulted from improper packaging, claims are brought against the company or manufacturer from whom the merchandise was purchased.

Unpacking and Checking

A few simple precautions must be observed in unpacking merchandise. When wooden crates are opened, one end of each cover board should be lifted carefully about 1/2 inch with a claw hammer or a crate opener, and the boards then tapped down flush again, leaving the nail heads standing above the boards. Then the nails can be removed easily, leaving the boards free at one end. It is now a simple task to remove the cover boards completely, using either tool. All nails that could injure anyone handling the crate or cover boards should be completely removed.

Heavy cartons and crates may be bound with wire or steel bands; considerable care must be used in opening them. Such bands and wire are tied under pressure and have a tendency to fly up and out when cut. The loose ends can easily put out an eye or cause other serious injury. A sharp pair of wire cutters should be used in such fashion that loose ends will be restricted from flying about. A pair of heavy gloves should be worn when handling wires and steel bands.

Cardboard cartons are difficult to tear open if the cover flaps are glued or stapled securely. When a stapled flap is forced open, hands or arms may become hooked on the sharp staples, or the staples may fly off in any direction. Also, the sharp edges of sealing tapes can cut like a knife. The quickest and simplest way to open a cardboard carton is to cut it open. To open a taped carton, the tape is cut where the flaps come together and at both ends of the cover flaps, without, however, inserting the knife far enough to damage any of the contents. To open a glued carton, the cardboard is cut just beneath the flaps on three sides, and the lid thus formed is lifted. In this way none of the enclosed merchandise will be damaged.

Each item received is carefully checked against the packing slip to be sure the two quantities agree. If a shortage exists and is not detected, the company will pay for merchandise it did not receive; the inventory system will be affected, because entries are made according to the quantities shown on the packing slip; and at the yearly inventory, a search will be made for merchandise that never was received. Any discrepancies in quantity or part number should be reported to the designated person so that a claim or adjustment can be made.

When the dealer or manufacturer is temporarily out of certain items and is not able to completely fill an order, it is necessary to make up a back order for shipment at some future date. The receiving clerk should check with his purchasing agent or buyer to see if the dealer who shipped the merchandise does or does not ship back orders. Some dealers or manufacturers cancel all items not shipped, and in that case the buyer has to reorder. And some companies, as a matter of policy, do not accept back-ordered merchandise.

UNIT B--AREAS OF RESPONSIBILITY

TOPIC 2--RECEIVING - Study Guide and Test

Study Guide

After you have studied the material in the workbook, complete the exercises as follows: (1) select the word that belongs in each numbered space in an exercise; and (2) write the word at the right in the space that has the same number as the space in the exercise.

1.	A shipping receipt lists the ___1___ of packages, the nature of their ___2___, and the ___3___ of a shipment.	1. ____________ 2. ____________ 3. ____________
2.	The ___4___ ___5___ is an itemized list of the articles included in a package or a group of packages.	4. ____________ 5. ____________
3.	An invoice is different from a packing slip in that it lists the ___6___ per item and the total ___7___ of all the items.	6. ____________ 7. ____________
4.	A(n) ___8___ ___9___ is a form issued by the transportation company acknowledging receipt of goods from the shipper.	8. ____________ 9. ____________
5.	A(n) ___10___ shipment is one on which the transportation charges are paid by the shipper.	10. ____________
6.	On a(n) ___11___ shipment the cost of the merchandise and the shipping charges are both paid by the receiver.	11. ____________
7.	A collect shipment requires payment of the ___12___ charges only by the receiver.	12. ____________
8.	Before signing the shipping receipt, each piece of freight is inspected for ___13___.	13. ____________
9.	A damaged shipment should be set aside for ___14___ and ___15___.	14. ____________ 15. ____________
10.	___16___ damage is often the result of ___17___ packing.	16. ____________ 17. ____________
11.	When checking merchandise against the packing slip, be sure the ___18___ agrees.	18. ____________

12. A(n) __19__ __20__ is that portion of an order that cannot be filled at the present time, but will be __21__ at a future date.

19. __________
20. __________
21. __________

Test

Read each statement and decide whether it is true or false. Circle T if the statement is true; circle F if the statement is false.

1. A shipping receipt usually names the shipper, the transportation company, and the consignee. — 1. T F
2. A packing slip must be enclosed in each carton. — 2. T F
3. An invoice includes prices and discount information. — 3. T F
4. The invoice should in each case be stapled to the packing slip during shipment. — 4. T F
5. On most C.O.D. shipments, transportation charges are prepaid by the receiver. — 5. T F
6. Apparently damaged cartons that are marked "Fragile" should be opened immediately for inspection. — 6. T F
7. Claims for damages should be filed without delay. — 7. T F
8. Claims for damages should always be made against both shipper and transportation company. — 8. T F
9. When a wooden crate is opened, all nails should be completely removed. — 9. T F
10. Cardboard cartons are the easiest packages to open. — 10. T F
11. An undisclosed shortage will disrupt the inventory system. — 11. T F
12. Some suppliers do not automatically ship back orders. — 12. T F

UNIT B--AREAS OF RESPONSIBILITY

TOPIC 3--BIN ARRANGEMENTS AND STOCK MAINTENANCE

This topic, "Bin Arrangements and Stock Maintenance," is planned to help you find answers to the following questions:

- Why is a stock of auto parts binned?
- How are stock bins arranged?
- What stock items present the greatest storage problem?
- How are spare parts and bins numbered?
- What action is taken when a part number changes?

When merchandise has been received and checked, it should be distributed to the bins as quickly as possible for two reasons: first, to replenish an existing shortage in the bin stock and second, to keep the receiving department cleared for further incoming shipments. If incoming orders are allowed to become mixed prior to checking, the job of segregating and checking each shipment becomes much more difficult.

Types of Bins

Automotive parts bins may be of almost any possible shape, depending on the nature of the merchandise to be stored. Bins are usually commercially purchased, although many adequate substitutes can be built inexpensively. A few of the most common bin types will be described below.

Stock commercial bins are generally of steel construction, measuring typically about 7 feet high and 3 feet wide. The depth of a bin may be from 1 to 4 feet, depending on what it is to contain. Shelves in standard bins may be bolted in at any level, so that openings of any desired height can be arranged. The metal partitions are designed so they can be set at various positions. When shelves and partitions in bins are arranged, careful thought should be given to the various sizes of parts which will eventually be stocked to minimize tearing down and rearranging shelves at future times. (See Fig. B-5.)

Conventional bins in an assortment of sizes will accommodate almost all regular and bulky parts, but a few special bins or storage arrangements will be required. Tail pipes are best stored vertically along wall areas that have been partitioned off in some simple manner--usually by wooden barriers. Drive shafts are frequently stored in a similar manner. Most axles will fit conveniently into simply designed racks or in commercial bins 4 feet deep.

Head gaskets, valve cover gaskets, and other gaskets of medium and large sizes should be stored flat in bins. Smaller gaskets such as differential cover,

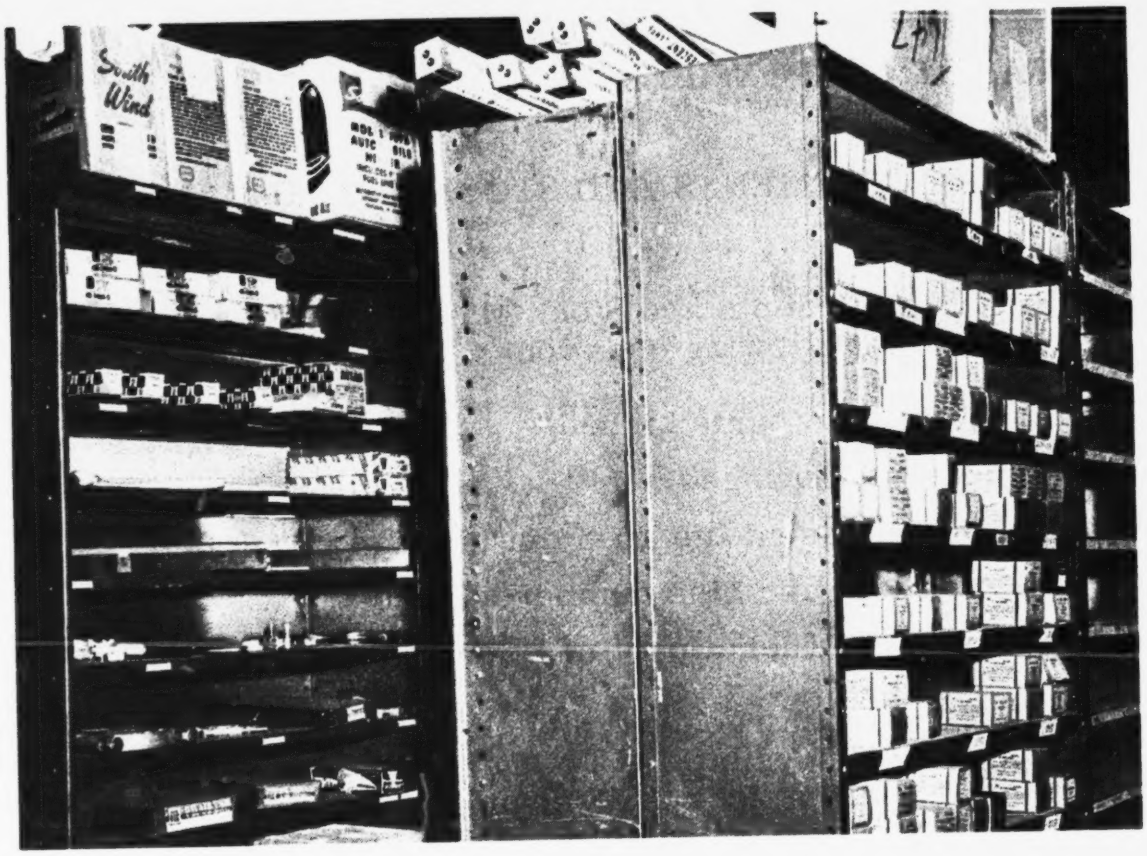


Fig. B—5. A typical metal parts bin

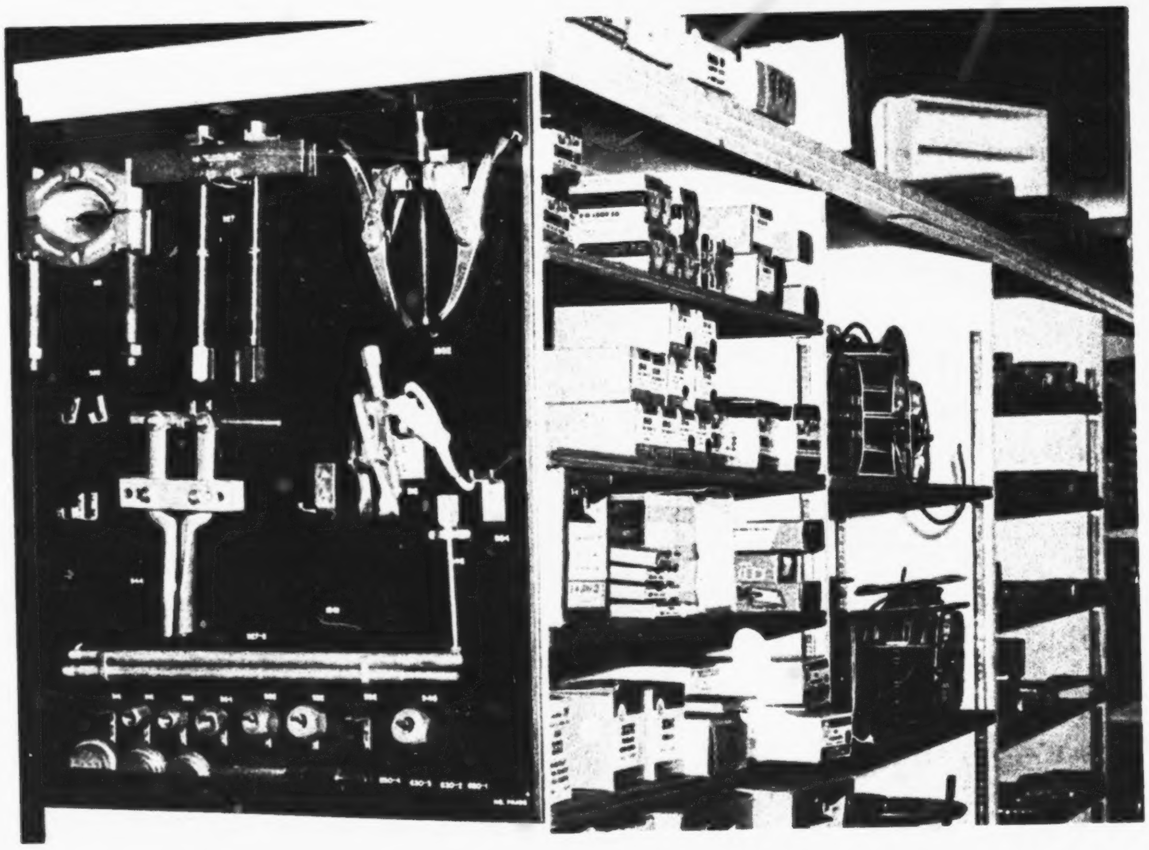


Fig. B—6. Tool storage and display, with wire and hose storage in conventional bins timing cover, transmission cover, and the like, may be hung on pegboards or stored in drawers. Small drawered cabinets are normally used for carburetor parts and other small parts. Separate metal drawers may also be installed among the bins to hold small washers, pins, springs, screws, and the like that otherwise might slip under or behind shelves or partitions.

Sheet metal storage is a real problem; fenders, hoods, doors, and panels are bulky, so a large area is needed to store them. These large items are usually relegated to a loft or an attic where the fenders are hung on racks made of pipe, while the panels are stored by standing them vertically against walls or barriers. The disadvantages here are obvious--the heavy panels must be carried up stairs or over long distances--but unless the parts department enjoys a large amount of unused space, little else can be done.

Mouldings can be stored in light, vertical wooden racks of local design; they pose no great problems except for the location, design, and construction of the racks.

Other items that may pose special storage problems include radiator hose, fan belts, wire, and metal or rubber tubing. These should be stored with the emphasis on convenience, being either binned or hung in handy locations. A little ingenuity is all that is needed. (See Fig. B-6.)

Bin Arrangement

The arrangement of bins in the most practical sequence is not always an easy task. Major manufacturers arrange their parts in a group sequence which must be followed if parts are to be located quickly and accurately. (See Unit C.) This sounds easy enough, but several drawbacks are encountered. The bulky items do not fit well into the regular bin section and must be located elsewhere. The building design may not allow an orderly progression of bins by group number, and the order must be broken. Whether to locate gaskets in numerical sequence with related parts or to place all gaskets in a single "gasket" section must be decided. If the group sequence is followed meticulously, heavy, awkward items may be assigned to the top shelf--seven feet up--while small, hard-to-reach items may be found in the very bottom row.

The layout and floor space of the parts department is, in the final analysis, the determining factor in the arrangement of the bins. After dividing the regular-size bin section from the bulky section, the bins are best arranged (usually back-to-back) with the ends of the rows toward the main sales counter. The small parts should be located nearest the counter, while the bulky items, which normally sell much more slowly, should be grouped at the far end of the regular bins. A three-foot aisle should be maintained to allow free passage without waste of valuable floor space.

When bins are arranged according to manufacturers' groupings, then a related system of parts is established. All parts for the engine are located in a group of adjacent bins; cooling system parts are similarly grouped; electrical parts, fuel system units, and transmission parts will also be found in logical, continuous bin locations. Other groupings follow, until the entire line of necessary and related parts is completed. The only exceptions to this sequence are, as already mentioned, that bulky items such as large housings, pipes, axles, mufflers, mouldings, and panels must be located in some other place. These bulky items, however, may be placed in logical group order, and their locations traced out as easily as the smaller parts.

Bin and Part Numbers

For adequate control, every part must be assigned a discrete number, and every bin within the department numbered. Card type inventory control systems provide space for recording the location of every part. (For example, part #7450745, bearing; location, bin #23). The ability to locate parts by bin number is important in a large parts department, since there may be some question as to whether the part is to be found in the regular or bulky section of the bins. Bin numbers should follow the same logical order as the group numbering sequence of the parts, and every inventory card should show the bin in which that particular part is located.

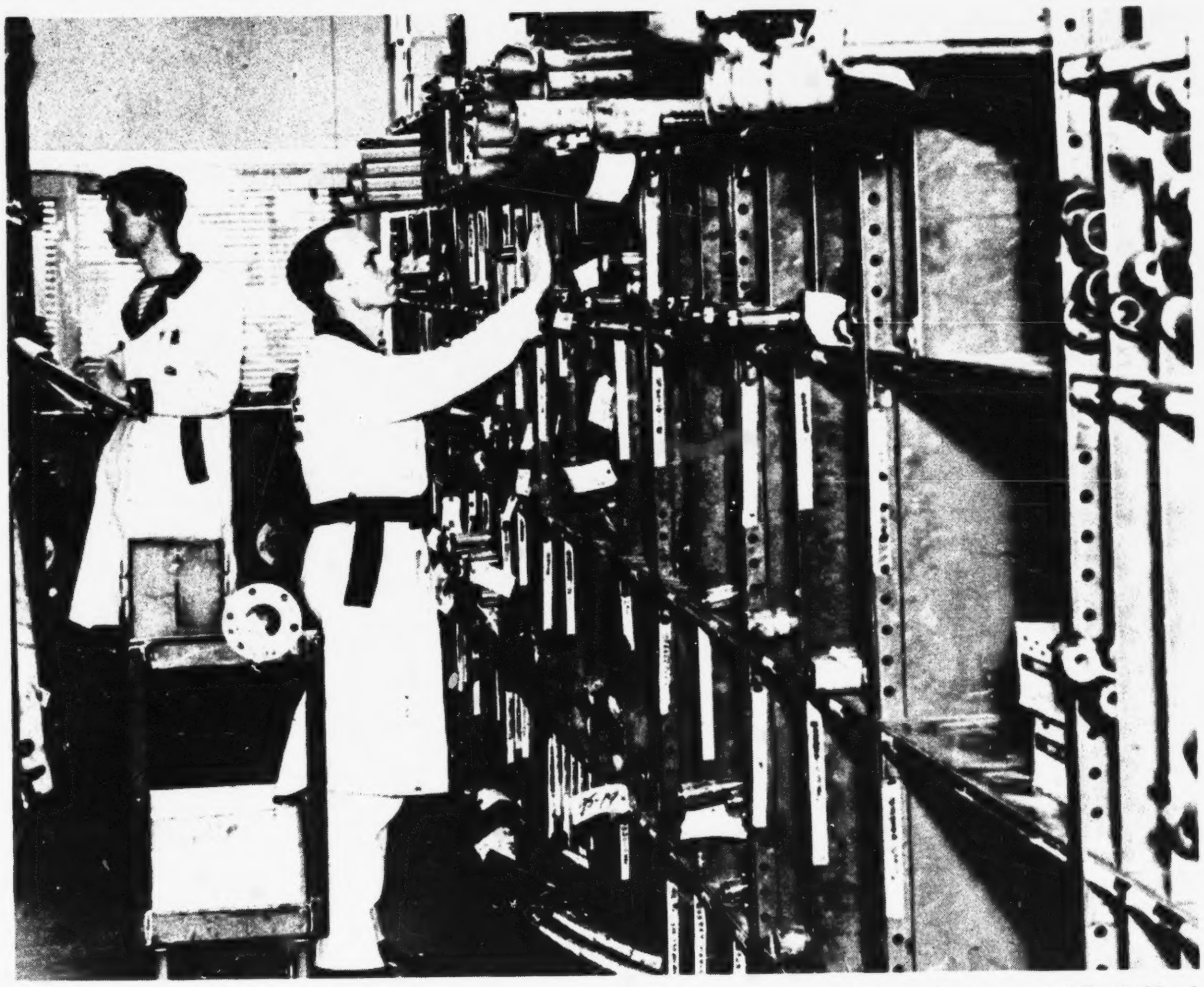
Some parts departments, especially those in agencies, find it helpful to display the group numbers on the ends of the rows of bins. For example, a particular row of G. M. parts bins might contain groups 4.022 to 4.465. Such coding of each row of bins assures the parts man of finding the correct aisle without using trial and error.

Part number labels, identifying the part within, should appear on every bin. Auto manufacturers supply complete sets of bin labels at nominal cost. These labels are indispensable to locating, identifying, and pricing the parts in stock. When part numbers, model usages, or prices change, new labels are supplied.

Jobbers and independent parts dealers are not so fortunate in having sets of labels supplied them by the various companies whose parts they stock. Some jobber-independents operate without bin labels, relying solely on their catalogs for the required information. Others make write-in tags to identify and price the merchandise.

Stocking the Bins

An apprentice who finds himself stocking the bins should learn the bin sequence of his store or department as quickly as possible. Once the general location of parts is determined, putting away stock becomes routine, except for certain precautions which must be followed. The importance of putting each part in its correct location on the shelves, in the bins, or on the racks cannot be overemphasized. (See Fig. B-7.) Parts placed in the wrong location may lose their identity or may be given out in a costly error. Each part must be correctly tagged or numbered before it is placed in stock. New merchandise should be placed behind old, so that old stock will be moved out first and fresh stock maintained. All parts should be handled carefully; many parts that do not look fragile



Courtesy Cochran and Celli, Oakland

Fig. B—7. Stocking bins in the bulky items section

can be severely damaged if dropped. When bins are stocked, part number changes should be checked. If a new number is superseding an old, the old stock must be marked accordingly. Parts and bins should be kept clean; dirt can damage many parts, and a dirty part is unattractive to the customer.

Study Assignment

Make a rough sketch of the bin locations in your store. Label each major section by name.

UNIT B--AREAS OF RESPONSIBILITY

TOPIC 3--BIN ARRANGEMENTS AND STOCK MAINTENANCE - Study Guide and Test

Study Guide

After you have studied the material in the workbook and the assigned material, complete the exercises as follows: (1) select the word that belongs in each numbered space in an exercise; and (2) write the word at the right in the space that has the same number as the space in the exercise.

1. Merchandise which has been received should be placed in the ___1___ as soon as it has been ___2___.
   1. __________
   2. __________

2. Auto parts bins may be built in almost any ___3___, depending on the ___4___ of the parts to be stored.
   3. __________
   4. __________

3. Commercially built bins are usually of ___5___ construction.
   5. __________

4. Small gaskets may be hung on ___6___ or put in gasket ___7___.
   6. __________
   7. __________

5. For agencies and dealers ___8___ ___9___ storage is often a difficult problem.
   8. __________
   9. __________

6. The arrangement of bins in a group ___10___ is not always possible.
   10. __________

7. A(n) ___11___ must be followed if parts are to be located quickly and accurately.
   11. __________

8. The ___12___ and ___13___ ___14___ of the parts department are the determining factors in the arrangement of the bins.
   12. __________
   13. __________
   14. __________

9. Bulky items may be placed in a ___15___ group sequence.
   15. __________

10. For adequate control, it is necessary that every part be assigned a ___16___ ___17___.
    16. __________
    17. __________

11. Part number ___18___ should appear on every bin ___19___.
    18. __________
    19. __________

Test

Read each statement and decide whether it is true or false. Circle T if the statement is true; circle F if the statement is false.

1. Newly received stock must be checked before it is binned. 1. T F

2. Checking several incoming orders together will save time. 2. T F

3. All the bins in one group should be the same size. 3. T F

4. Tail pipes should be stored flat on the floor behind the bins. 4. T F

5. Most axles are less than 4 feet long. 5. T F

6. Carburetor parts are usually stored in small drawers. 6. T F

7. Door panels should be binned to prevent damage. 7. T F

8. Mouldings can be stored in vertical racks. 8. T F

9. Bins should always be arranged to strictly follow the manufacturer's group sequence. 9. T F

10. Small parts should be located near the service counter. 10. T F

11. Every inventory card should show the bin location of the part. 11. T F

12. A mislocated part can give rise to a costly error. 12. T F

UNIT B--AREAS OF RESPONSIBILITY

TOPIC 4--PICKUP AND DELIVERY

This topic, "Pickup and Delivery," is planned to help you find answers to the following questions:

- Why is pickup and delivery service offered?
- Why is a schedule prepared for pickups and deliveries?
- What advantages have route plans?
- What records does a driver keep?
- Does a delivery man take orders?

Pickup and delivery service in the auto parts business is no longer optional; it is necessary. The increasing pressures among competing firms, the sprawling urbanization of business districts, and the rising value in dollars-and-cents by which the garageman measures his time are some of the reasons why this service is essential.

Pickup and delivery service requires something more than just a pickup truck and an apprentice driver. Certain practices, when followed, can substantially increase sales volume and improve customer relations. Some of these desirable practices will be discussed in this topic.

Establishing Schedules

Scheduling and routing are keys to effective pickup and delivery. In a large operation where many pickups and deliveries are performed, two schedules are usually arranged, one for morning and one for afternoon. It is important that these schedules be kept at the hours arranged and that all personnel and customers know the schedule.

Educating the customer to scheduled deliveries should be done tactfully and honestly. This is a task of the person receiving the order, as well as of the delivery driver. Once the customer is aware of the scheduled hours, he can plan his own work accordingly. The important thing, of course, is to maintain the schedule as closely as possible, so that commitments are kept and promised material is delivered on time.

If the territory to be covered is small, it is possible to make two complete circuits a day, depending on the number of orders received and the quantity of merchandise to be delivered. Over a larger area the route is usually divided into two half-circles; one-half is scheduled for morning deliveries and the other half for afternoon. Again, all those involved must be informed of the scheduled hours of delivery if the program is to be successful.

The number of orders will vary from day to day, as will the location of business firms who order. Hence, a certain amount of flexibility should be built into every schedule--an extra few minutes to take care of the unexpected things that will occasionally happen. The driver should allow himself a few critical minutes at each location, for reasons which will be discussed later.

Planning Routes

Routing must be planned to carry the driver around his circuit by the shortest possible route. This is often difficult, and the details will change almost daily, since the delivery points vary from day to day. A delivery or route book is essential. In the delivery book the driver should log every delivery in the order in which he plans to make them. Knowing every stop beforehand, the driver is able to route his deliveries in the most economical manner and in accordance with the preestablished schedule.

Pickups should be made with the deliveries. As the driver logs his route, pickup orders should be noted and worked into the delivery schedule. Pickup orders, usually in the form of purchase orders originated by other parts personnel, can be conveniently arranged into the delivery route so as to conserve time and expense. Copies of purchase orders for material to be picked up should be placed in an established place so that the driver will automatically receive them and know the merchandise is to be picked up.

Checking Orders

Each order to be delivered should be checked when it is being loaded. The driver has the delivery invoice before him, preferably on a clipboard, and since he must handle each piece of merchandise as he loads it, it is a simple matter to check each part against the invoice. This is a good idea for two reasons. If the clerk who filled the order made an error, it can be corrected before the delivery is made, possibly saving an extra trip. Also, the driver is protected against claims of shortage or damage alleged to have occurred between loading and delivery.

When orders have been checked to the driver's satisfaction, he should log each in his delivery book, noting customer name, address, and invoice number or numbers. At the time of delivery the driver should obtain the signature, in his delivery book, of the person receiving the merchandise and record the date and time of delivery. This procedure serves as an additional safeguard for the driver and his company. showing that the merchandise was properly delivered. Often the driver is expected to return signed copies of invoices to his company--if both the original and the customer's copy were sent--and this he must learn to do faithfully.

Improving Customer Relations

The delivery driver has a unique opportunity for building customer relations. Besides the generally helpful attitude which the driver should always exhibit, there are a number of courtesies which, when extended, pay big dividends. Some of these courtesies are small, others require effort, but all are important:

- Never block the customer's driveway, either entrance or exit. If necessary, park outside momentarily until provisions can be made for unloading.
- Ask where the merchandise is to be delivered; do not dump the order in the middle of the garage floor and leave it. If your order is for a particular car that is present in the shop where you are delivering (and chances are it is), ask if you should place the parts in or near the vehicle. This is often appreciated, since it keeps the merchandise out of the way and near the car on which it will be used. And it is particularly appreciated if you are delivering a body order containing large sheet metal panels.
- Go over the order with the garageman if he wishes you to do so. Be prepared to answer any questions as to undelivered or back-ordered merchandise. The customer will be vitally interested in when he will receive the missing parts, and this information should be given him prior to the delivery. Never say, "I'm just the driver; I don't know anything about that!" The customer has reason to expect you to be interested in his problem. You have an obligation to be concerned. Courtesy is always proper when dealing with a customer. Do not just pass the buck to the parts man who filled the order.

Building Sales

The driver can often recognize additional sales opportunities while delivering. Having checked each order when loading, he knows pretty well what each contains. While unloading, at or near a vehicle under repair, he may notice damaged parts for which replacements were not ordered. It is easy for a busy garageman to fail to order all needed parts, especially for extensive body damage. He may appreciate a tactful reminder that certain other parts are needed.

While a driver is in a customer's place of business, he should always inquire about other needs. The customer will welcome such concern, and it is very possible that additional needs have arisen since the original order was placed. An order pad should be kept in the truck for such occasions. If the driver feels inadequate to take the order, he can telephone his parts department for any help needed. Accepting and writing up the orders is good parts experience, and it will relieve the customer of the time-consuming necessity of placing the order himself.

UNIT B--AREAS OF RESPONSIBILITY

TOPIC 4--PICKUP AND DELIVERY - Study Guide and Test

Study Guide

After you have studied the material in the workbook, complete the exercises as follows: (1) select the word that belongs in each numbered space in an exercise; and (2) write the word at the right in the space that has the same number as the space in the exercise.

1. ____1____ and ____2____ services in the auto parts business are no longer optional but necessary.
   1. ____________
   2. ____________

2. ____3____ and ____4____ are keys to the effectiveness of auto parts services.
   3. ____________
   4. ____________

3. All ____5____ and ____6____ must be aware of the schedule for deliveries.
   5. ____________
   6. ____________

4. A certain amount of ____7____ should be built into every schedule to take care of ____8____ happenings.
   7. ____________
   8. ____________

5. The ____9____ must be planned by each driver to be the ____10____ that will cover all necessary stops.
   9. ____________
   10. ____________

6. The driver should ____11____ every delivery in the ____12____ in which he plans to make them.
   11. ____________
   12. ____________

7. ____13____ should be integrated with the delivery schedule.
   13. ____________

8. Pickup orders are usually in the form of ____14____ ____15____ originated by other parts personnel.
   14. ____________
   15. ____________

9. At the time of delivery the driver should obtain in his delivery book the ____16____ of the person receiving the merchandise.
   16. ____________

10. The delivery driver has a unique opportunity for building customer ____17____.
    17. ____________

11. The driver should be concerned about his ____18____ problems.
    18. ____________

12. It is often possible for the driver to recognize additional __19__ opportunities while delivering. 19. ________

13. It is always a good idea to inquire about other __20__ while a delivery is being made. 20. ________

Test

Read each statement and decide whether it is true or false. Circle T if the statement is true; circle F if the statement is false.

1. Providing pickup and delivery service is one way to overcome competition in the parts business. 1. T F
2. Increased sales may prove to be a side result of a good delivery service. 2. T F
3. Making a schedule and sticking to it are basic to a satisfactory delivery service. 3. T F
4. With a regular schedule, one daily delivery will satisfy most customers. 4. T F
5. The order in which deliveries are made is not important. 5. T F
6. A good deliveryman memorizes his stops daily. 6. T F
7. Pickups and deliveries should be made on separate runs. 7. T F
8. Each order should be checked when it is loaded. 8. T F
9. The deliveryman should always park at the customer's door, unload there speedily, and clear the doorway by leaving without delay. 9. T F
10. The driver should not undertake to answer a customer's questions about back orders. 10. T F
11. The driver should not point out to the customer items the customer may have carelessly forgotten. 11. T F
12. The deliveryman may properly ask the customer if he needs any additional merchandise. 12. T F

UNIT B--AREAS OF RESPONSIBILITY

TOPIC 5--INTRODUCTION TO COUNTER SALES

This topic, "Introduction to Counter Sales," is planned to help you find answers to the following questions:

- Why does material on counter sales appear in two units of this course?
- What facet of a parts business generates jobs for parts men?
- How should regular customers and casual customers be treated?
- How should customer complaints be dodged?
- How should a counter salesman be dressed?

The topic of counter sales is covered in detail in Unit E of this course. However, an introductory word about selling is in order for three reasons. First, the apprentice may find himself engaged in counter work very early in his parts career. Second, the conduct associated with successful salesmanship is important to every employee in the parts organization. And third, the importance of counter sales should be realized by everyone, wherever he may be located in the parts structure. This importance should be made clear early in the parts apprentice's career.

Profitable Sales

The company each apprentice works for is like all other companies in that it is in business to make a profit. Indeed, if it did not make a profit,it could not continue to operate and to provide jobs. This is a fact which is so commonplace one tends to forget it, and at times everyone needs to be reminded. Counter sales mean customers. Customers mean profits. Profits mean jobs. It is that simple.

But we cannot cover counter sales quite as easily as suggested above. Profitable counter sales require two things: (1) customers, and (2) competent parts salesmen. Without customers, the dealer might as well lock up and go home. If customers are many, but the parts men are incompetent, there soon will be neither profits nor customers, in which case the dealer can lock up and go home for good. Profitable counter sales are the vital function of any company.

Rules for Salesmen

A good salesman is always courteous. No matter how busy the salesman, when a customer enters the store his presence should be acknowledged and a courteous greeting extended. If he cannot be waited on immediately, he should be told that a salesman will help him as soon as possible. A simple greeting like "Good morning, I'll be with you in a moment" will suffice.

Never quarrel with a customer. Nobody ever won an argument with a customer. A salesman may win a point, but then lose a sale--and a customer. A customer may be critical and demanding, but the seller has an obligation to serve him to the best of his ability. When the salesman was hired, he accepted a certain responsibility--the responsibility of working to make his company's business successful and profitable. That includes waiting on difficult customers. There is one compensation about difficult customers: they make one appreciate the good ones.

If a customer has a complaint, he should be heard courteously and attentively. If the counterman cannot handle the complaint, he should call the person most likely to help. Correcting a legitimate complaint is a normal and necessary part of every business.

Interest should be taken and shown in the customer's needs, making him feel that he will be helped. The customer will be grateful, and the salesman's job will be more pleasant. A lot of customer goodwill is lost because of laxity and indifference. The salesman should know his regular customers by name. He should never make promises he cannot or does not intend to keep. Friendliness and helpfulness pay big dividends.

Good telephone habits are essential, since a lot of parts business is done over the phone. The person answering a phone should identify himself, speaking clearly into the transmitter; he should be prepared with pad and pencil to take an order. Courtesy is as important in telephone transactions as it is in counter sales. Care should be taken to get all the information necessary to check out wanted parts. The salesman should not make a guess as to whether items are in stock, but should go to the bin and confirm that the part or parts are on hand. Finally, the salesman should always thank the person for calling and invite him to call again.

Personal conduct and appearance take on new meaning when one begins to serve the consumer public. Careless habits of speech and dress should be corrected. Profanity is never in good taste. Good grooming is always desirable. Dress shirts and ties are recommended, although sport shirts may be permissible. Most parts men wear shop coats to protect their street clothes. Soiled shop coats should be changed regularly. Effective salesmanship demands good personal habits.

Competence in Selling

Competence is another essential in the parts business, and it should be developed as quickly as possible. Competence has two components: accuracy and speed, but accuracy comes first. As in learning to type, first one works for accuracy, then for speed.

The complexity of the parts industry demands careful attention to every sale. The current Chevrolet Master Catalog lists 127 different types of fan belts, compared to only 1 just twelve years ago. Today a careful, extensive inquiry as to model and options is required just to sell a fan belt! This complexity, present in every phase of the industry, requires that the student develop an early respect for accuracy. Accuracy means careful attention to detail. It means learning to read the parts catalogs properly and knowing the product thoroughly. These are skills that come only with experience, but their development begins the day a new man opens the parts book for the first time or waits on his first customer. Giving out wrong parts is a costly, time-consuming business.

Speed in handling customer needs will come as experience builds. Familiarity with the product and the premises is the key to rapid performance. But speed must not sacrifice accuracy, since a balance is to be sought. Remember, competence is the goal, and competence involves accuracy first and speed second.

Most errors are due to carelessness and can be avoided. It always costs more to correct an error than avoid it. Errors can prove dangerous. If a 1 inch wheel cylinder kit is used for a cylinder with a 1-1/16 inch bore, the cylinder may blow out under hard braking. A few years ago, one of the major auto manufacturers paid out $100,000 as a result of a lawsuit because some metal cuttings were found in the master brake cylinder of a new car involved in a fatal accident. An inspector had been careless, and it cost a man his life. Fortunately, most errors are not quite so costly.

UNIT B--AREAS OF RESPONSIBILITY

TOPIC 5--INTRODUCTION TO COUNTER SALES - Study Guide and Test

Study Guide

After you have studied the material in the workbook, complete the exercises as follows: (1) select the word that belongs in each numbered space in an exercise; and (2) write the word at the right in the space that has the same number as the space in the exercise.

1. The conduct associated with ___1___ is important to every employee in the parts organization.
1. ____________

2. All parts companies have a common purpose-- to make a(n) ___2___.
2. ____________

3. Profitable counter sales require ___3___ and ___4___ parts salesmen.
3. ____________
4. ____________

4. A good salesman is always ___5___.
5. ____________

5. No employee should ___6___ with a customer.
6. ____________

6. If a customer has a(n) ___7___, what he has to say should be listened to attentively.
7. ____________

7. A(n) ___8___ should always be taken in the customer's needs.
8. ____________

8. The person who answers a phone should ___9___ himself, and should always ___10___ the person for calling.
9. ____________
10. ____________

9. ___11___ is a must in the parts business and should be acquired as quickly as possible.
11. ____________

10. Competence has two components: ___12___ and ___13___.
12. ____________
13. ____________

11. Most errors in auto parts work are due to ___14___.
14. ____________

12. It always costs more to ___15___ an error than to ___16___ it.
15. ____________
16. ____________

13. Personal ___17___ and ___18___ take on new meaning when the parts man begins to meet the consumer public.
17. ____________
18. ____________

Test

Read each statement and decide whether it is true or false. Circle T if the statement is true; circle F if the statement is false.

1. Assignment to counter work may come early in an apprentice's career. 1. T F
2. Auto parts companies are out to make profits. 2. T F
3. Profits mean something only to owners. 3. T F
4. The seller has no obligation to an unknown customer. 4. T F
5. Laxity of the counterman can cause loss of sales. 5. T F
6. Parts orders should not be taken by phone. 6. T F
7. The counterman should verify that wanted parts are in stock. 7. T F
8. Accuracy has two components: competence and speed. 8. T F
9. A thorough knowledge of each product is gained by reading the catalog. 9. T F
10. Speed in handling parts increases with experience. 10. T F

UNIT B--AREAS OF RESPONSIBILITY

TOPIC 6--THE SHOP COUNTER

This topic, "The Shop Counter," is planned to help you find answers to the following questions:

- How is the shop counter different from a sales counter?
- Which counter is given priority of service?
- Which parts men usually staff the shop counter? Why?
- What part does the mechanic play in shop counter transactions?
- How are out-of-stock items handled at the shop counter?

In the automobile agency, and to a lesser extent in the jobber-independent machine shop, the shop parts counter occupies a place of strategic importance. Agencies rely heavily on their service operation for maintenance of the cars and trucks they sell, for customer satisfaction, and for monetary income.

Service shops require an adequate supply of parts. In some agencies the number of parts and accessories sold through the service department approaches 50 percent of the total parts volume. Most parts sold through agency service departments are list price sales, so it can be appreciated that shop counter sales offer a most profitable potential.

Relations Between Service and Parts Departments

Large agencies, with a dozen or more mechanics and body men drawing upon the parts room, may require a shop counter that is staffed by two or more fulltime parts men. Shop counters are usually set apart from the customer or "street" counter, and properly so, because shop counters require special procedures.

Agencies depend heavily upon car and truck sales for their financial success. To maintain the new and used cars sold and to perform the warranty and service operations demanded by customers, the service department becomes a vital part of the agency operation. Since sales and service are so closely linked and because the service department is dependent upon a continuing adequate supply of parts, the three primary functions of an agency--sales, service, and parts--are complementary, depending substantially upon one another.

This interdependence of departments becomes most evident at the shop counter, where mechanics and parts men meet. Nowhere in the automotive agency is cooperation needed more than here. Mechanics who present parts requisitions at the shop counter must be given priority, since needless delay costs the company heavily in terms of profit and of customer satisfaction. Time wasted at the shop counter may cost the company $12.00 or more per hour, plus a dissatisfied customer if the job is not finished on time!

Shop Counter Knowledge and Skills

Perhaps more than at any other station, parts knowledge and skills are most needed at the shop counter. At the current customer labor rate (in most auto agencies) of $8.25 to $9.00 per hour, it is obvious that to keep a mechanic or bodyman waiting at the shop counter for parts is expensive. Competent, thoroughly trained parts men are needed to expedite filling each mechanic's needs and to minimize delays.

One of the reasons for staffing the shop counter with the best parts men is that radical new designs in automobiles and automotive products, introduced by auto manufacturers almost every year, first come to the attention of the parts men at the shop counter. Warranty service forms a substantial part of the agency service department operation, and as new models appear yearly, parts personnel must continually acquaint themselves with a multitude of new parts. Shop counter parts men usually feel the burden first, often receiving requisitions for new parts even before the parts have been placed in stock or before the new car model has gone on display. During the early weeks and months of a new production year, shop countermen must become operationally acquainted with the new models. This often involves learning the function as well as the parts of some complex new unit and requires the study of special parts lists and service bulletins.

Requisitions

A clear understanding should exist between parts and service personnel that when a mechanic presents a parts requisition at the shop counter, certain obligations must be met. The mechanic must present a clear and legible requisition to the parts man. The requisition should be made out by the mechanic for several reasons. First, because he is intimately aware of the parts he needs and should be able to write down all the parts needed to complete a job. Second, if he stands at the parts counter and dictates his needs for the parts man to write down, he is taking up both men's time. A third reason is that omissions and errors may occur during the verbal dictation of a parts order, especially if a long list of parts is involved.

Then the parts man is obligated to process and complete each order as quickly as possible. "Emergency" orders which occasionally arise should be treated as such, and an added effort should be made by the parts man to expedite filling them.

In a number of ways parts men and service men can cooperate in the handling of shop requisitions. If a mechanic is working on a major overhaul, such as an engine or transmission, chances are that by the time he has completed the tearing-down operation, he has a good idea of the parts he will need. He should then prepare and present a parts requisition to the parts room for all the items needed. Thus, while the mechanic completes his cleaning and machining operations, the parts department will have time to fill the order between other, smaller orders and to take action to obtain parts not in stock.

Another timesaving method of handling shop requisitions is to issue first the parts that will be needed first, allowing the mechanic or body man to return to his job while the balance of the order is filled. For example, if a mechanic requests a long list of automatic transmission parts, he could be given the clutch discs, plates, and clutch drum bushing first. He could then return to his bench and assemble the clutch units while the parts man fills the rest of the order. Similarly, a body man with a list of front-end sheet metal parts might be able to return to work for several hours if he needed and was issued frame horn extensions, a radiator core support, and certain inner panels and baffles. The parts man would then be able to complete the order at leisure.

Many shop requisitions will call for material not in stock. The nature and price of the part, and the urgency with which it is needed, will determine how the order is to be treated. Small purchases are usually treated as local "buy-outs,"--the part is located by phone and a purchase order issued for it. Larger items, especially warranty materials, are normally available from the factory only and must be ordered from the factory usually on an "emergency" or "car-tie-up" basis.

Inventory clerks usually work from the shop requisitions to maintain the inventory system. For this reason shop requisitions must be kept clean and legible, and all part numbers and quantities clearly shown. When shop requisitions have been filled, they must usually go to the inventory clerk so that his posting may be completed.

Charges

All parts, including special purchases and emergency materials, that are issued to the shop must be charged out on the work order or repair order. These orders usually come to the shop counter from the service dispatcher, and it is the responsibility of parts personnel to see that parts are properly charged. Different companies have slightly different rules concerning entering parts used on repair orders, but ordinarily it is by part number, name, and list price. Wholesale and warranty repair orders require special treatment and are handled according to the policy or procedures set up by the agency or company.

On purchase orders for parts needed to complete a repair job, the part or parts to be purchased and the purchase order numbers should be entered on the repair order when the purchase order is written. This will prevent any repair order from being closed out without a complete list of the parts used.

UNIT B--AREAS OF RESPONSIBILITY

TOPIC 6--THE SHOP COUNTER - Study Guide and Test

Study Guide

After you have studied the material in the workbook, complete the exercises as follows: (1) select the word that belongs in each numbered space in an exercise; and (2) write the word at the right in the space that has the same number as the space in the exercise.

1.	In an automobile agency, the ___1___ ___2___ supports the service operation.	1. __________ 2. __________
2.	Most parts sold through agency service departments are sold at ___3___ ___4___.	3. __________ 4. __________
3.	The three primary functions of an agency: sales, ___5___, and ___6___ depend substantially upon one another.	5. __________ 6. __________
4.	Mechanics who present parts requisitions at the shop counter must be given ___7___ over lesser tasks.	7. __________
5.	Warranty service forms a(n) ___8___ part of the agency service department operation.	8. __________
6.	During the early weeks and months of a new production year, shop counter men must become ___9___ acquainted with the new ___10___.	9. __________ 10. __________
7.	The parts requisition should be made out by the ___11___.	11. __________
8.	Emergency orders require an added effort by the parts man to ___12___ them.	12. __________
9.	Parts men and service men must cooperate in handling ___13___ and ___14___.	13. __________ 14. __________
10.	Inventory clerks usually work from the ___15___ ___16___ to ___17___ the inventory system.	15. __________ 16. __________ 17. __________
11.	All parts which are issued to the shop must be ___18___ on the ___19___ order or repair order.	18. __________ 19. __________

12. When purchase orders are issued for parts needed to complete a repair job, the parts needed and the purchase order number should be entered on the ___20___ order. 20. ____________

Test

Read each statement and decide whether it is true or false. Circle T if the statement is true; circle F if the statement is false.

1. Agencies depend on their service shops to ensure continued customer satisfaction. 1. T F

2. Outside sales can account for 50 percent of an agency's parts business. 2. T F

3. The three primary functions of an agency are mutually independent. 3. T F

4. The best parts men should be stationed at the shop counter. 4. T F

5. The shop counter parts man must know the names and numbers of all parts, but he need not know their functions. 5. T F

6. The parts man should prepare the requisitions for the shop mechanic's needs. 6. T F

7. When he fills a long shop list, the parts man should first issue the parts to be used first, then assemble the rest as his work load permits. 7. T F

8. Inventory clerks use a recap of shop requisitions to assist in keeping the inventory current. 8. T F

9. All parts used in the shop are charged to the work order. 9. T F

10. All parts used in the shop are paid for by the customers. 10. T F

UNIT B--AREAS OF RESPONSIBILITY

TOPIC 7--THE MACHINE SHOP AND RELATED SALES

This topic, "The Machine Shop and Related Sales," is planned to help you find answers to the following questions:

- What relation has a machine shop to a parts business?
- What advantages has a combined parts sales and machine shop operation?
- How can a machine shop generate related sales?

For jobber-independents and agencies alike, a well-equipped automotive machine shop is increasingly necessary. The complex nature of today's automotive products is such that "shade-tree" methods and equipment are no longer adequate. It is difficult, if not impossible, to repair or replace some components of current automobiles with the tools and equipment of ten years ago. Many smaller garages and repair shops do not possess the expensive equipment necessary to make satisfactory repairs.

Machine Shop Equipment

The high-compression, high rpm, V-8 engine found in most U.S. automobiles today is a carefully fitted, finely balanced power plant. Its piston pins, for example, are so carefully fitted that at least one major manufacturer does not sell piston pins as replacement parts, but instead will sell only a factory-fitted piston and pin assembly. Many new pistons are size-marked by 0.0005 (1/2 thousandth) graduations, so that cylinders which vary slightly in bore may be individually fitted. Engine bearings must be precisely selected and fitted. This complexity is not limited to engines alone; multiple carburetion, complex electrical circuits, automatic equipment, and complicated drives are such that diagnosis and repair can be made only with the aid of specialized and expensive equipment.

Typical of the equipment found in a modern automotive machine shop are the following: pin hones and reamers, assorted valve guide tools, valve refacers, hard seat grinders, boring bars, line-boring equipment, bearing resizers, armature lathes, brake drum lathes and shoe sizing jigs, crankshaft grinders, camshaft grinders, rod boring and aligning equipment, balancing jigs, clutch rebuilding machines, degreasing tanks, arbor presses, fly wheel and cylinder head resurfacers, and dozens of special hand tools, micrometers, dial indicators, and test gauges. (See Fig. B-8 through B-11.)

The ordinary garage man owns but a few of the machines and equipment listed above. He relies on local machine shops for his specialty work, and this reliance opens up a number of related sales opportunities for the well-equipped parts dealer.

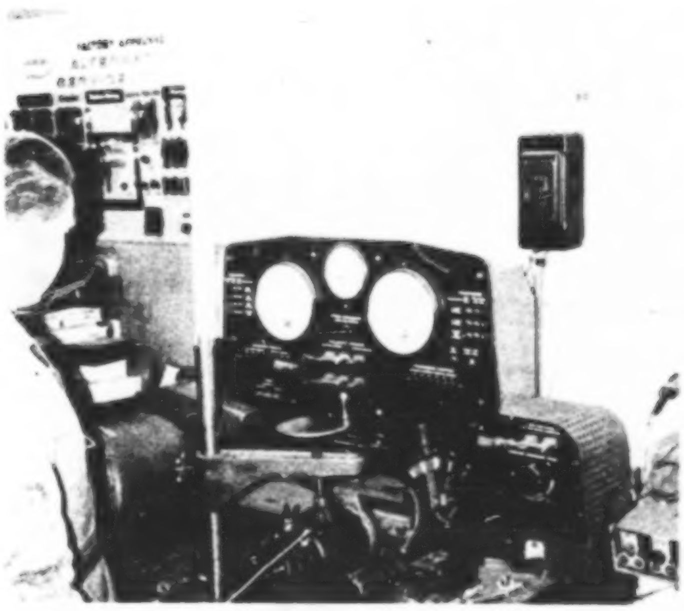


Fig. B—8. Testing a generator and voltage regulator on a modern electrical test bench

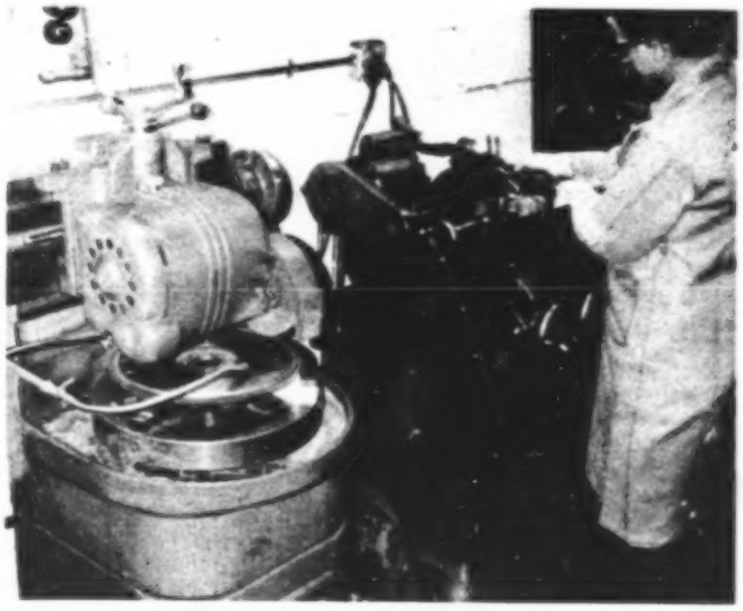


Fig. B—9. In the foreground, a flywheel resurfacing grinder; in the background, a piston grinder

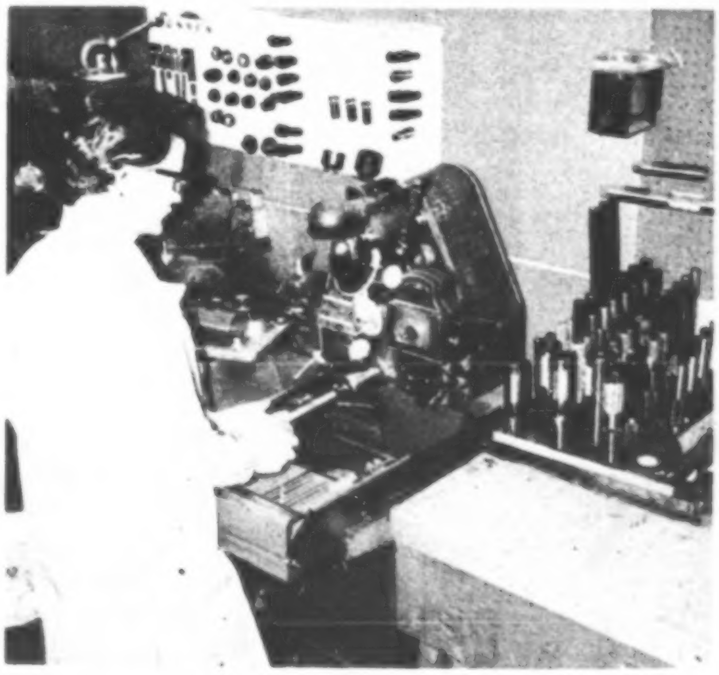


Fig. B—10. Fitting piston pins on a Sunnen hone. A complete assortment of mandrels and truing sleeves is at the right.

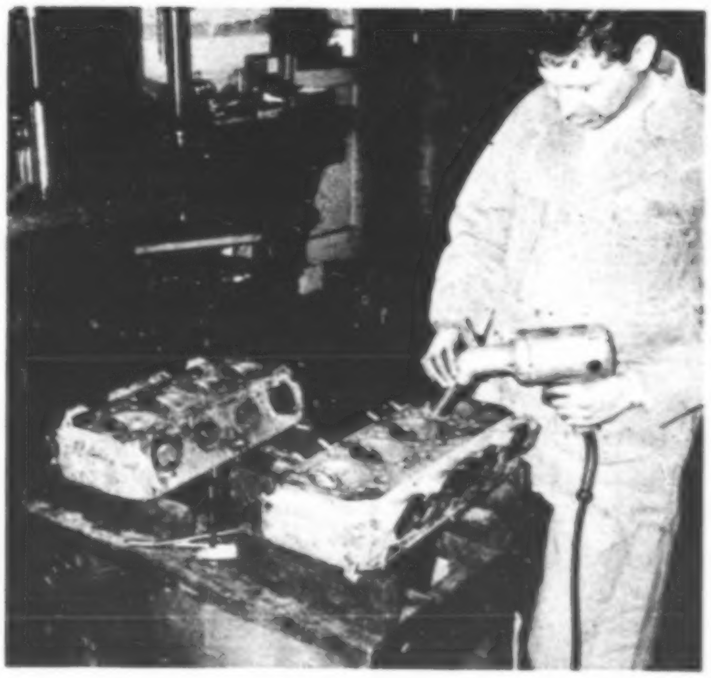


Fig. B—11. Grinding valve seats. The customer will need valves, valve springs, and gaskets.

Courtesy Tri-City Auto Supply, Richmond

Machine Shop Service

There is a distinct advantage to the one-stop service that a parts organization equipped with a machine shop can offer. Today the professional auto repair man is usually a man in a hurry. He measures his time in dollars and cents; his business textbook is a flat-rate manual. He cannot tolerate unnecessary delays. He will buy his materials where the service is quick, efficient, and complete. The establishment that can offer him a complete line of replacement parts and accessories, plus machine shop services to help him complete his repairs efficiently, economically, and with a minumum of delay, can count on his continued patronage. The retail customer is little different in this respect. A few "bargain hunters" will shop around, but one-stop service is a powerful advantage. The shop that sells it can watch its sales climb.

Machine shop services contribute significantly to the economy of the parts organization, and the parts man should be thoroughly familiar with the shop and its capabilities. Machine shop services are profitable to the company and provide valuable opportunities for related sales. Moreover, proper shop diagnosis, assembly, and installation can reduce parts failures.

Related Sales Opportunities

One of the biggest assets of a machine shop is the related sales opportunities it presents. A related sales opportunity is any part or service that can logically be suggested for purchase along with the parts or service requested. This opportunity works in two ways; if the customer is buying parts that suggest service operations, then he may be encouraged to buy the needed services; if the customer brings some machining or assembly work to the shop, there is an opportunity to sell him any related parts. The parts man who is thoroughly familiar with shop services may take full advantage of this dual opportunity for related sales. The necessity for auto parts apprentices to be well-grounded in the essentials of automotive principles and design is evident.

A worn-out clutch disc that shows signs of scoring on the flywheel side should appear like a red flag bearing dollar signs to the parts man. The fly wheel is scored; it needs resurfacing or replacing. Similarly, scored brake shoes suggest scored brake drums; the drums should be turned and new linings ground to fit them. A simple inquiry into a head gasket purchase may turn up a warped cylinder head and a chance to sell a valuable machine shop service.

The number of related sales opportunities that machine shops offer is tremendous, and advantage should be taken of each one. A counterman acquainted with shop equipment and its operation can talk intelligently about machining operation whenever the opportunity arises. He can impress upon his customers the advantages of proper testing and assembly. Many people are only vaguely aware of the services a machine shop can offer. When the customer's needs are pointed out to him, the parts and service sell each other.

Reducing Parts Failure

Machine shop services reduce parts failures and "come backs." Proper assembly and installation of new or rebuilt parts can materially reduce the number of parts failures now experienced. Some customers are simply careless about proper installation, while others may be completely unaware of the factors involved. Many a generator has been returned because of reversed polarity or a faulty voltage regulator that was never checked. A scored flywheel will spoil a new clutch disc, and a new master cylinder kit installed in a pitted cylinder is uneconomical and dangerous as well. Driving a bearing on a rear axle shaft with a hammer and punch can crack the inner race, or put out an eye if the hardened steel should chip. Guessing at crankshaft bearing sizes invites trouble and needless expense. Expanding a set of pistons and aligning the rods may keep a ring job from going sour.

These few examples should serve to point out the constant threat of failures due to careless and improper procedures. By knowing the precautions against such failures, the parts man can suggest methods and services to prevent them. Customers appreciate practical advice and an invitation into the shop to view a needed service. But the customer should not be coaxed into buying something he does not need. Customer goodwill is an expensive commodity. There are plenty of opportunities for legitimate sales; the parts man need only learn to recognize them.

Parts failure due to improper installation by the customer is an expense that your company usually must bear. Even though the part may clearly indicate faulty or careless installation, it is usually good business to replace the part free of charge (unless it is quite expensive) to maintain customer goodwill. If the number of such failures can be reduced by selling the services of the machine shop, then not only will a needless expense be avoided, but shop revenue will be increased.

Study Assignment

Bring to your instructor a written account (at least one full page) of the services offered by the machine shop where you work. If your company does not operate a machine shop, visit a nearby shop and obtain your information there.

Topic for Discussion

Be prepared to discuss the following topic if you are asked to do so:

What opportunities for additional parts sales are suggested by the machine shop services that you reported upon?

UNIT B--AREAS OF RESPONSIBILITY

TOPIC 7--THE MACHINE SHOP AND RELATED SALES - Study Guide and Test

Study Guide

After you have studied the material in the workbook and the assigned material, complete the exercises as follows: (1) select the word that belongs in each numbered space in an exercise; and (2) write the word at the right in the space that has the same number as the space in the exercise.

1. Many small garages and repair shops cannot have the expensive ___1___ necessary to make ___2___ repairs.

   1. ____________
   2. ____________

2. A combined parts sales and machine shop operation can offer ___3___ service.

   3. ____________

3. Today the professional auto repairman cannot tolerate unnecessary ___4___; he will buy where the service is ___5___, ___6___, and ___7___.

   4. ____________
   5. ____________
   6. ____________
   7. ____________

4. Machine shop services contribute significantly to the ___8___ of the parts organization.

   8. ____________

5. One of the greatest assets of a machine shop is the opportunities it affords for ___9___ ___10___.

   9. ____________
   10. ____________

6. A wornout clutch disc may indicate a(n) ___11___ flywheel.

   11. ____________

7. Proper ___12___ and ___13___ of new or rebuilt parts can materially reduce the number of parts failures experienced by parts stores.

   12. ____________
   13. ____________

8. Customers appreciate an invitation into the ___14___ and ___15___.

   14. ____________
   15. ____________

9. Scored brake drums should be ___16___ in the shop.

   16. ____________

10. The ___17___ ___18___ is the garageman's business textbook.

   17. ____________
   18. ____________

Test

Read each statement and decide whether it is true or false. Circle T if the statement is true; circle F if the statement is false.

1. The tools and equipment of ten years ago no longer suffice for current auto repair work. 1. T F

2. An engine block whose cylinder bores vary even slightly is discarded. 2. T F

3. The owner of a small garage can farm out necessary machining. 3. T F

4. The professional auto repair man will usually buy any replacement part from the cheapest source. 4. T F

5. The parts man need know little about machine tool capabilities. 5. T F

6. Machine shop operations play no part in increasing sales of replacement parts. 6. T F

7. Inquiry about a gasket purchase may lead to a cylinder head honing job. 7. T F

8. Proper assembly and installation of parts is essential to reduction in parts failures. 8. T F

9. If the customer is responsible for faulty installation of a part, he should always be charged for a replacement. 9. T F

10. Some manufacturers will not sell a replacement piston alone. 10. T F

unit C • Cataloging Systems

TOPIC 1--FACTORY PARTS SYSTEMS

This topic, "Factory Parts Systems," is planned to help you find answers to the following questions:

- Are all parts numbering systems the same?
- What is a nonsignificant part number?
- How can a part be identified if its number is not known?
- Must the apprentice parts man memorize the numbers of all the parts he works with?
- Are standard items, such as nuts and flat washers, given parts numbers?

Major similarities exist in all automobile manufacturer's cataloging systems. Examples drawn from the different catalogs are reproduced and appended to this topic as Figs. C-1 to C-9. From these specimens the parts apprentice may gain an appreciation of the fundamental concepts of parts catalog design and may then apply these basic concepts in learning details of the particular catalogs with which he must work.

As the auto parts industry continues to increase in size and complexity, the parts man must spend a proportionately greater amount of time in study and use of his parts catalogs. One example of this growth should be sufficient to make the point. In 1948, the Chevrolet Master Parts Catalog contained less than 700 pages. In 1964, the combined Chevrolet catalog and price lists numbered well over 3,500 pages, an increase of 400 percent in 16 years or 25 percent per year.

Parts catalogs are indispensable operating tools of the parts department. Without the information they contain, it would be impossible for a parts man to locate, identify, and price the merchandise he must handle. Consequently, a thorough working knowledge of parts catalogs and related manuals is essential if the parts employee is to function at his best.

Parts Catalogs

A study of the major auto manufacturer's catalogs reveals that they all have the same basic structure. All contain an alphabetical and a numerical index. All present pictorial diagrams, usually preceding each group division. Each manufacturer uses a group number, or part number prefix, to identify the major assemblies and subassemblies of the vehicle. And, of course, all manufacturers use discrete part numbers to identify each individual part. In addition, manufacturers' catalogs present a wealth of related information to aid the parts man in model identification, interior trim classification, engine and option specifications, ordering procedures, and so on.

Assignment of Parts Numbers

Each new part produced by an automobile manufacturer must be assigned a unique part number to give it identity. The methods of assigning part numbers differ slightly with various manufacturers. Two examples will be used for illustration, the General Motors "block systems," and the Ford Motor Company expansion method of allocating specific part numbers from basic group numbers.

In the General Motors system certain "blocks" of numbers have been assigned to specific manufacturing divisions.[1] (See Fig. C-1.) As new parts are designed by the various divisions, each division assigns part numbers in rotation from its block of numbers. General Motors parts numbers are "nonsignificant." This means that no digit in the manufacturer's part number identifies parts in a certain category. For example, there is nothing within the G.M. part number 7450745 to indicate that it is a differential side carrier bearing to be found in group 5.536.

The G.M. manufacturer's part number, which is a six or seven digit number, is used only to describe an individual part. The same part number is used by all divisions (Chevrolet, Pontiac, Buick, Oldsmobile, Cadillac, G.M.C. Truck) to describe the same part. Hence, if a certain part were used on Pontiac products and also on Chevrolet products, both divisions would use the same part number to identify that part.

Ford Motor Company part numbers, however, are formed by "expanding" the basic group numbers that subdivide the parts catalog. Ford part numbers are "significant" in that they identify the nature, location, and application of the part to which they are assigned. For example, Ford part number C3AZ 6303A tells the experienced Ford parts man that the number is a crankshaft (all crankshafts have the basic number 6303) and that it fits a 1963 series A vehicle (C3 means 1963, A identifies the model). By the addition of proper prefixes (C3AZ is a prefix) and suffixes (the final A in the part number above is a suffix), new parts can be added to the existing system and still retain the basic group information. Any new crankshaft will be assigned the basic part number 6303, but the prefix and suffix will change. (See Fig. C-2.)

The Ford parts catalog is divided into sections, which are further divided into basic groups. (See Fig. C-2.) The basic group numbers are divided into subgroups, and these are the basis upon which each part number is constructed. The assignment of Ford part numbers, then, rests upon the individual subgroup divisions already established. (See Fig. C-3.)

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[1] Permission to use Figs. C-1 through C-9 has been granted by the manufacturers whose catalogs are represented, and is gratefully acknowledged.

Group Numbers

Group numbers are particularly important to those manufacturers' systems whose part numbers are nonsignificant. In the General Motors example above it was noted that G. M. part number 7450745 indicates nothing about the nature and application of that particular part. In such systems, one must turn to the group number for information which will give meaning to nonsignificant part numbers.

In Fig. C-2 and Fig. C-4 the group number sequence of each of the major automobile manufacturers is given. Although these group divisions vary in number and interpretation, there is a basic similarity to them all. Each group division represents a major section or area of the vehicle, and each group is divided into subgroups within which discrete parts may be identified.

In the General Motors system, the group numerals before the decimal point identify the major assemblies or systems in the automobiles; numerals after the decimal relate to subassemblies or individual parts. Referring to our earlier example of G. M. group 5.536, the 5. refers to a rather large "group section" of the book which contains the data on parts for the operating brake, propeller shaft, and rear axle. Further division of the 5.0000 group separates these three units, and it is not until one refers to subgroup 5.536 that the nature of the specific part can be found. Then, No. 5.536 can be identified as a specific subgroup (Bearing-Bearing Assy.-Race, Differential Side) within a larger group system. (See Fig. C-5.)

A method of dividing parts into major groups and subgroups is followed in all automotive parts catalogs. Although the various manufacturers have assigned different numbers to each group and subgroup, the basic systems are similar. As a beginning exercise, it is a good idea for the parts apprentice to memorize the major group divisions of the catalog with which he is working. This is a reasonable task, since most catalogs contain less than 25 major group divisions.

Group numbers seldom change, whereas part numbers may change frequently. Therefore, it is not advisable for the apprentice to attempt to memorize large blocks of part numbers; there are too many and they change too often. The group numbers are more stable and are used so frequently they should be committed to memory. There is a decided advantage in being able to turn quickly and efficiently to the major group within which the needed part can be found.

Use of the Catalog

Three general methods are used in locating parts in the manufacturers' catalogs. Two of the methods are used frequently; the third is used less often. The most common method of locating parts is by referring to the noun name as listed in the alphabetical index. The alphabetical index is keyed to the group number system of the book and leads directly to the numerical group under which the part can be found.

A request for a fan blade for a 1965 Cadillac Coupe de Ville with air conditioning, for example, would lead to group 1.064. (See Fig. C-6.) Although this page was reproduced from a Chevrolet alphabetical index, it will yield the correct group number, since all GM divisions use the same group system. Turning to group 1.064 in the Cadillac catalog, running down the "Series" column to "1965 exc. 75, CC," then across to the "Specifications" column to "Air Cond., 7 blade type," it is found that the desired part number is 148 5400. (See Fig. C-7.) A note specifies that when this part is installed on a car built prior to engine number 145200, it is necessary to install a spacer, for which the part number is given.

The second common method of locating parts is by referring to the illustrations that precede each major group division in most manufacturers' catalogs. Continuing our Cadillac fan blade example, the group number of the fan blade (1.064) can be determined by examining the illustration of a complete engine assembly, which is found at the beginning of the engine group section. (See Fig. C-8.)

The third method of locating a part is used when only the part number is known. Reference to the numerical index or price index will yield the group number under which the part is stocked. Under the group number, a description and location of the part can be obtained.

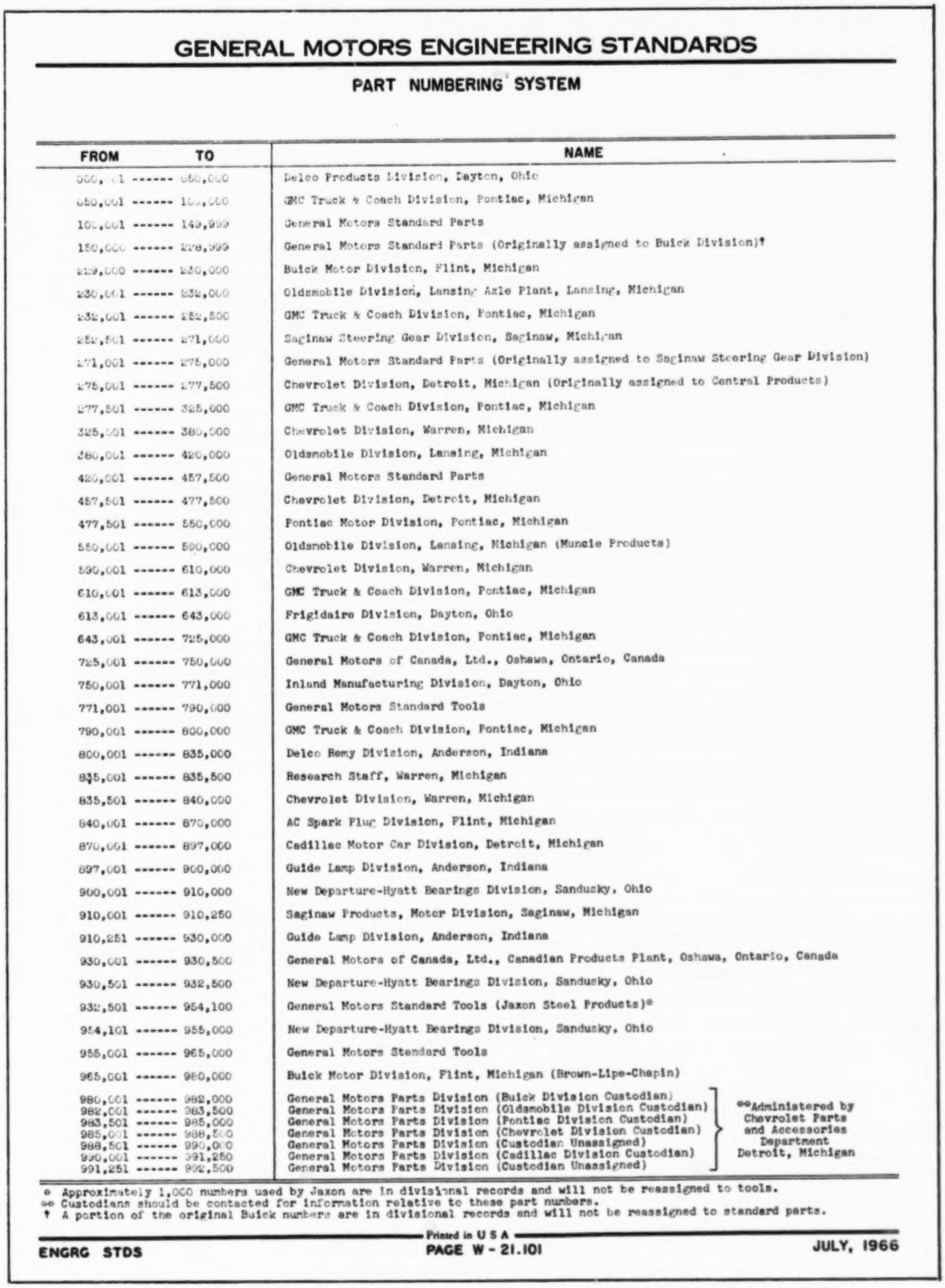
Supplementary Information in Catalogs

Agency parts books are filled with supplementary materials to aid the parts man in determining and locating the correct parts. Model identification, engine-change-over specifications, fan belt dimensions, generator output ratings, bearing charts, gear ratio tables, moulding and clip charts, and interior trim color schemes are just a few of the data contained in parts catalogs. Since these supplementary aids vary widely from company to company, the student is urged to acquaint himself thoroughly with the parts book (or books) he must use.

One of the most informative sections of parts catalogs is the Parts History Index. (See Fig. C-9.) In this section part number changes, superseded numbers, and items removed from service are recorded. The section is especially valuable for identifying "old" part numbers and in helping to keep stock current by noting the parts dropped from service. Items in stock that have been removed from service are usually returned to the factory under an obsolescence plan offered by most manufacturers.

Study Assignment

Ask your parts manager or supervisor to assign you 20 parts for which you are to determine the correct part numbers. The parts assigned should include examples from many different parts of the book. When you have completed the assignment, ask your manager or supervisor to mark the number of incorrect answers; then submit the result to your instructor for grading.



GENERAL MOTORS ENGINEERING STANDARDS

PART NUMBERING SYSTEM

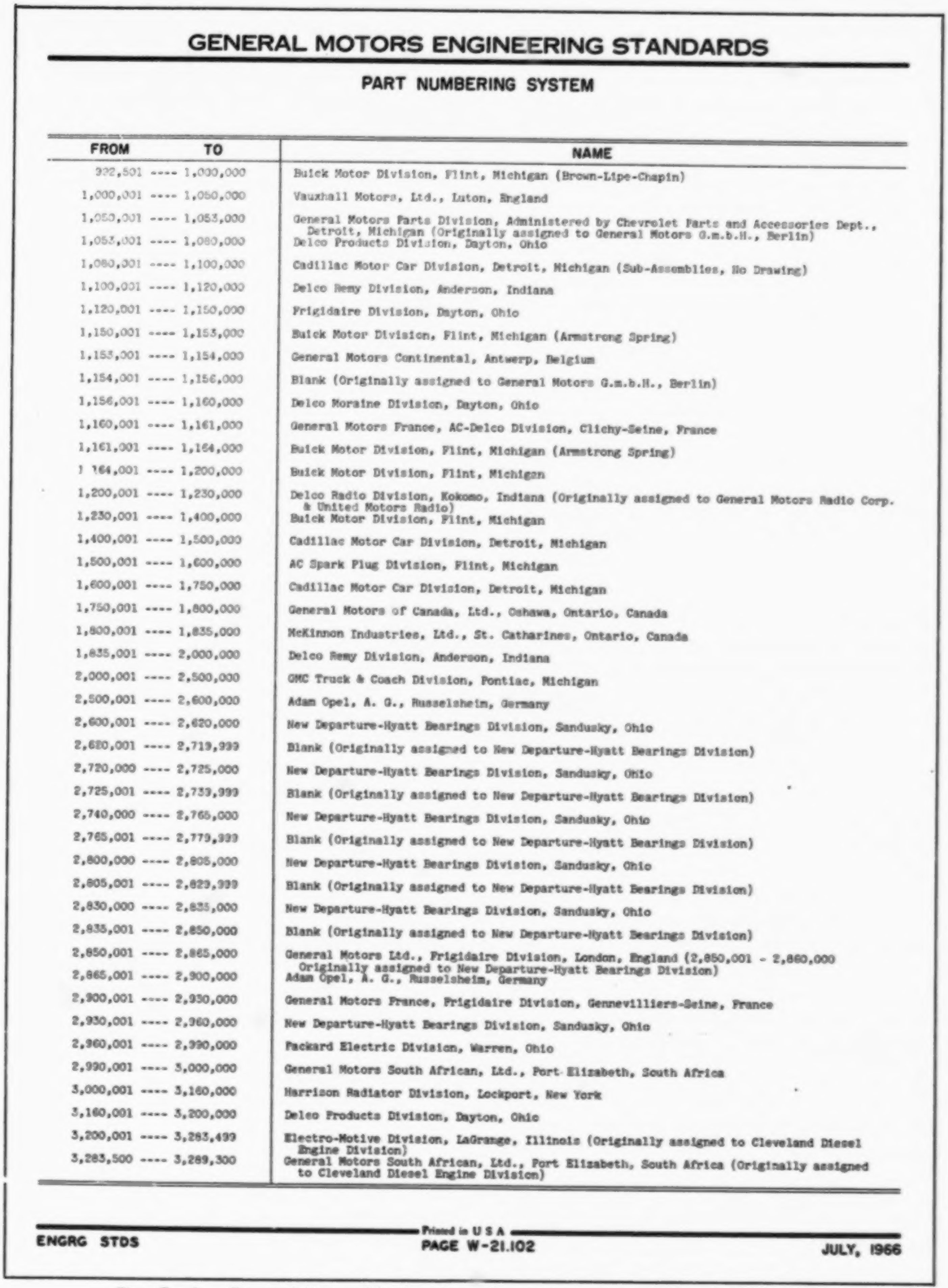
FROM	TO	NAME	
000,001	050,000	Delco Products Division, Dayton, Ohio	
050,001	100,000	GMC Truck & Coach Division, Pontiac, Michigan	
100,001	149,999	General Motors Standard Parts	
150,000	228,999	General Motors Standard Parts (Originally assigned to Buick Division)†	
229,000	230,000	Buick Motor Division, Flint, Michigan	
230,001	232,000	Oldsmobile Division, Lansing Axle Plant, Lansing, Michigan	
232,001	252,500	GMC Truck & Coach Division, Pontiac, Michigan	
252,501	271,000	Saginaw Steering Gear Division, Saginaw, Michigan	
271,001	275,000	General Motors Standard Parts (Originally assigned to Saginaw Steering Gear Division)	
275,001	277,500	Chevrolet Division, Detroit, Michigan (Originally assigned to Central Products)	
277,501	325,000	GMC Truck & Coach Division, Pontiac, Michigan	
325,001	380,000	Chevrolet Division, Warren, Michigan	
380,001	420,000	Oldsmobile Division, Lansing, Michigan	
420,001	457,500	General Motors Standard Parts	
457,501	477,500	Chevrolet Division, Detroit, Michigan	
477,501	550,000	Pontiac Motor Division, Pontiac, Michigan	
550,001	590,000	Oldsmobile Division, Lansing, Michigan (Muncie Products)	
590,001	610,000	Chevrolet Division, Warren, Michigan	
610,001	613,000	GMC Truck & Coach Division, Pontiac, Michigan	
613,001	643,000	Frigidaire Division, Dayton, Ohio	
643,001	725,000	GMC Truck & Coach Division, Pontiac, Michigan	
725,001	750,000	General Motors of Canada, Ltd., Oshawa, Ontario, Canada	
750,001	771,000	Inland Manufacturing Division, Dayton, Ohio	
771,001	790,000	General Motors Standard Tools	
790,001	800,000	GMC Truck & Coach Division, Pontiac, Michigan	
800,001	835,000	Delco Remy Division, Anderson, Indiana	
835,001	835,500	Research Staff, Warren, Michigan	
835,501	840,000	Chevrolet Division, Warren, Michigan	
840,001	870,000	AC Spark Plug Division, Flint, Michigan	
870,001	897,000	Cadillac Motor Car Division, Detroit, Michigan	
897,001	900,000	Guide Lamp Division, Anderson, Indiana	
900,001	910,000	New Departure-Hyatt Bearings Division, Sandusky, Ohio	
910,001	910,250	Saginaw Products, Motor Division, Saginaw, Michigan	
910,251	930,000	Guide Lamp Division, Anderson, Indiana	
930,001	930,500	General Motors of Canada, Ltd., Canadian Products Plant, Oshawa, Ontario, Canada	
930,501	932,500	New Departure-Hyatt Bearings Division, Sandusky, Ohio	
932,501	954,100	General Motors Standard Tools (Jaxon Steel Products)*	
954,101	955,000	New Departure-Hyatt Bearings Division, Sandusky, Ohio	
955,001	965,000	General Motors Standard Tools	
965,001	980,000	Buick Motor Division, Flint, Michigan (Brown-Lipe-Chapin)	
980,001	982,000	General Motors Parts Division (Buick Division Custodian)	**Administered by Chevrolet Parts and Accessories Department Detroit, Michigan
982,001	983,500	General Motors Parts Division (Oldsmobile Division Custodian)	
983,501	985,000	General Motors Parts Division (Pontiac Division Custodian)	
985,001	988,500	General Motors Parts Division (Chevrolet Division Custodian)	
988,501	990,000	General Motors Parts Division (Custodian Unassigned)	
990,001	991,250	General Motors Parts Division (Cadillac Division Custodian)	
991,251	992,500	General Motors Parts Division (Custodian Unassigned)	

* Approximately 1,000 numbers used by Jaxon are in divisional records and will not be reassigned to tools.
** Custodians should be contacted for information relative to these part numbers.
† A portion of the original Buick numbers are in divisional records and will not be reassigned to standard parts.

Printed in U S A

ENGRG STDS | PAGE W - 21.101 | JULY, 1966

Fig. C—1. General Motors block system of assigning parts numbers (Page 1 of 5)



GENERAL MOTORS ENGINEERING STANDARDS

PART NUMBERING SYSTEM

FROM	TO	NAME
992,501	1,000,000	Buick Motor Division, Flint, Michigan (Brown-Lipe-Chapin)
1,000,001	1,050,000	Vauxhall Motors, Ltd., Luton, England
1,050,001	1,053,000	General Motors Parts Division, Administered by Chevrolet Parts and Accessories Dept., Detroit, Michigan (Originally assigned to General Motors G.m.b.H., Berlin)
1,053,001	1,080,000	Delco Products Division, Dayton, Ohio
1,080,001	1,100,000	Cadillac Motor Car Division, Detroit, Michigan (Sub-Assemblies, No Drawing)
1,100,001	1,120,000	Delco Remy Division, Anderson, Indiana
1,120,001	1,150,000	Frigidaire Division, Dayton, Ohio
1,150,001	1,153,000	Buick Motor Division, Flint, Michigan (Armstrong Spring)
1,153,001	1,154,000	General Motors Continental, Antwerp, Belgium
1,154,001	1,156,000	Blank (Originally assigned to General Motors G.m.b.H., Berlin)
1,156,001	1,160,000	Delco Moraine Division, Dayton, Ohio
1,160,001	1,161,000	General Motors France, AC-Delco Division, Clichy-Seine, France
1,161,001	1,164,000	Buick Motor Division, Flint, Michigan (Armstrong Spring)
1,164,001	1,200,000	Buick Motor Division, Flint, Michigan
1,200,001	1,230,000	Delco Radio Division, Kokomo, Indiana (Originally assigned to General Motors Radio Corp. & United Motors Radio)
1,230,001	1,400,000	Buick Motor Division, Flint, Michigan
1,400,001	1,500,000	Cadillac Motor Car Division, Detroit, Michigan
1,500,001	1,600,000	AC Spark Plug Division, Flint, Michigan
1,600,001	1,750,000	Cadillac Motor Car Division, Detroit, Michigan
1,750,001	1,800,000	General Motors of Canada, Ltd., Oshawa, Ontario, Canada
1,800,001	1,835,000	McKinnon Industries, Ltd., St. Catharines, Ontario, Canada
1,835,001	2,000,000	Delco Remy Division, Anderson, Indiana
2,000,001	2,500,000	GMC Truck & Coach Division, Pontiac, Michigan
2,500,001	2,600,000	Adam Opel, A. G., Russelsheim, Germany
2,600,001	2,620,000	New Departure-Hyatt Bearings Division, Sandusky, Ohio
2,620,001	2,719,999	Blank (Originally assigned to New Departure-Hyatt Bearings Division)
2,720,000	2,725,000	New Departure-Hyatt Bearings Division, Sandusky, Ohio
2,725,001	2,739,999	Blank (Originally assigned to New Departure-Hyatt Bearings Division)
2,740,000	2,765,000	New Departure-Hyatt Bearings Division, Sandusky, Ohio
2,765,001	2,779,999	Blank (Originally assigned to New Departure-Hyatt Bearings Division)
2,800,000	2,805,000	New Departure-Hyatt Bearings Division, Sandusky, Ohio
2,805,001	2,829,999	Blank (Originally assigned to New Departure-Hyatt Bearings Division)
2,830,000	2,835,000	New Departure-Hyatt Bearings Division, Sandusky, Ohio
2,835,001	2,850,000	Blank (Originally assigned to New Departure-Hyatt Bearings Division)
2,850,001	2,865,000	General Motors Ltd., Frigidaire Division, London, England (2,850,001 - 2,860,000 Originally assigned to New Departure-Hyatt Bearings Division)
2,865,001	2,900,000	Adam Opel, A. G., Russelsheim, Germany
2,900,001	2,930,000	General Motors France, Frigidaire Division, Gennevilliers-Seine, France
2,930,001	2,960,000	New Departure-Hyatt Bearings Division, Sandusky, Ohio
2,960,001	2,990,000	Packard Electric Division, Warren, Ohio
2,990,001	3,000,000	General Motors South African, Ltd., Port Elizabeth, South Africa
3,000,001	3,160,000	Harrison Radiator Division, Lockport, New York
3,160,001	3,200,000	Delco Products Division, Dayton, Ohio
3,200,001	3,283,499	Electro-Motive Division, LaGrange, Illinois (Originally assigned to Cleveland Diesel Engine Division)
3,283,500	3,289,300	General Motors South African, Ltd., Port Elizabeth, South Africa (Originally assigned to Cleveland Diesel Engine Division)

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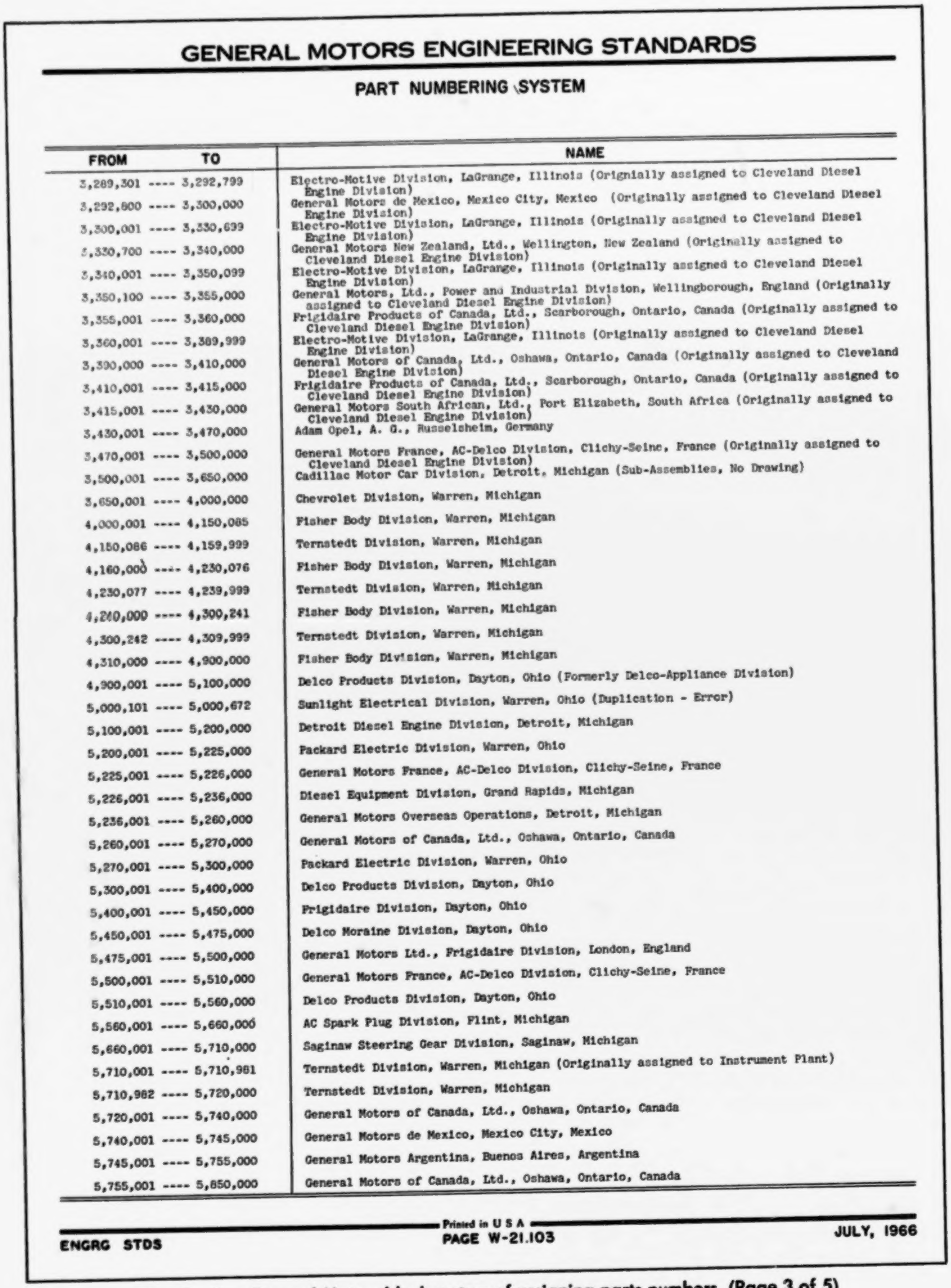
Fig. C—1. General Motors block system of assigning parts numbers (Page 2 of 5)



GENERAL MOTORS ENGINEERING STANDARDS

PART NUMBERING SYSTEM

FROM	TO	NAME
3,289,301 ----	3,292,799	Electro-Motive Division, LaGrange, Illinois (Orignially assigned to Cleveland Diesel Engine Division)
3,292,800 ----	3,300,000	General Motors de Mexico, Mexico City, Mexico (Originally assigned to Cleveland Diesel Engine Division)
3,300,001 ----	3,330,699	Electro-Motive Division, LaGrange, Illinois (Originally assigned to Cleveland Diesel Engine Division)
3,330,700 ----	3,340,000	General Motors New Zealand, Ltd., Wellington, New Zealand (Originally assigned to Cleveland Diesel Engine Division)
3,340,001 ----	3,350,099	Electro-Motive Division, LaGrange, Illinois (Originally assigned to Cleveland Diesel Engine Division)
3,350,100 ----	3,355,000	General Motors, Ltd., Power and Industrial Division, Wellingborough, England (Originally assigned to Cleveland Diesel Engine Division)
3,355,001 ----	3,360,000	Frigidaire Products of Canada, Ltd., Scarborough, Ontario, Canada (Originally assigned to Cleveland Diesel Engine Division)
3,360,001 ----	3,389,999	Electro-Motive Division, LaGrange, Illinois (Originally assigned to Cleveland Diesel Engine Division)
3,390,000 ----	3,410,000	General Motors of Canada, Ltd., Oshawa, Ontario, Canada (Originally assigned to Cleveland Diesel Engine Division)
3,410,001 ----	3,415,000	Frigidaire Products of Canada, Ltd., Scarborough, Ontario, Canada (Originally assigned to Cleveland Diesel Engine Division)
3,415,001 ----	3,430,000	General Motors South African, Ltd., Port Elizabeth, South Africa (Originally assigned to Cleveland Diesel Engine Division)
3,430,001 ----	3,470,000	Adam Opel, A. G., Russelsheim, Germany
3,470,001 ----	3,500,000	General Motors France, AC-Delco Division, Clichy-Seine, France (Originally assigned to Cleveland Diesel Engine Division)
3,500,001 ----	3,650,000	Cadillac Motor Car Division, Detroit, Michigan (Sub-Assemblies, No Drawing)
3,650,001 ----	4,000,000	Chevrolet Division, Warren, Michigan
4,000,001 ----	4,150,085	Fisher Body Division, Warren, Michigan
4,150,086 ----	4,159,999	Ternstedt Division, Warren, Michigan
4,160,000 ----	4,230,076	Fisher Body Division, Warren, Michigan
4,230,077 ----	4,239,999	Ternstedt Division, Warren, Michigan
4,240,000 ----	4,300,241	Fisher Body Division, Warren, Michigan
4,300,242 ----	4,309,999	Ternstedt Division, Warren, Michigan
4,310,000 ----	4,900,000	Fisher Body Division, Warren, Michigan
4,900,001 ----	5,100,000	Delco Products Division, Dayton, Ohio (Formerly Delco-Appliance Division)
5,000,101 ----	5,000,672	Sunlight Electrical Division, Warren, Ohio (Duplication - Error)
5,100,001 ----	5,200,000	Detroit Diesel Engine Division, Detroit, Michigan
5,200,001 ----	5,225,000	Packard Electric Division, Warren, Ohio
5,225,001 ----	5,226,000	General Motors France, AC-Delco Division, Clichy-Seine, France
5,226,001 ----	5,236,000	Diesel Equipment Division, Grand Rapids, Michigan
5,236,001 ----	5,260,000	General Motors Overseas Operations, Detroit, Michigan
5,260,001 ----	5,270,000	General Motors of Canada, Ltd., Oshawa, Ontario, Canada
5,270,001 ----	5,300,000	Packard Electric Division, Warren, Ohio
5,300,001 ----	5,400,000	Delco Products Division, Dayton, Ohio
5,400,001 ----	5,450,000	Frigidaire Division, Dayton, Ohio
5,450,001 ----	5,475,000	Delco Moraine Division, Dayton, Ohio
5,475,001 ----	5,500,000	General Motors Ltd., Frigidaire Division, London, England
5,500,001 ----	5,510,000	General Motors France, AC-Delco Division, Clichy-Seine, France
5,510,001 ----	5,560,000	Delco Products Division, Dayton, Ohio
5,560,001 ----	5,660,000	AC Spark Plug Division, Flint, Michigan
5,660,001 ----	5,710,000	Saginaw Steering Gear Division, Saginaw, Michigan
5,710,001 ----	5,710,981	Ternstedt Division, Warren, Michigan (Originally assigned to Instrument Plant)
5,710,982 ----	5,720,000	Ternstedt Division, Warren, Michigan
5,720,001 ----	5,740,000	General Motors of Canada, Ltd., Oshawa, Ontario, Canada
5,740,001 ----	5,745,000	General Motors de Mexico, Mexico City, Mexico
5,745,001 ----	5,755,000	General Motors Argentina, Buenos Aires, Argentina
5,755,001 ----	5,850,000	General Motors of Canada, Ltd., Oshawa, Ontario, Canada

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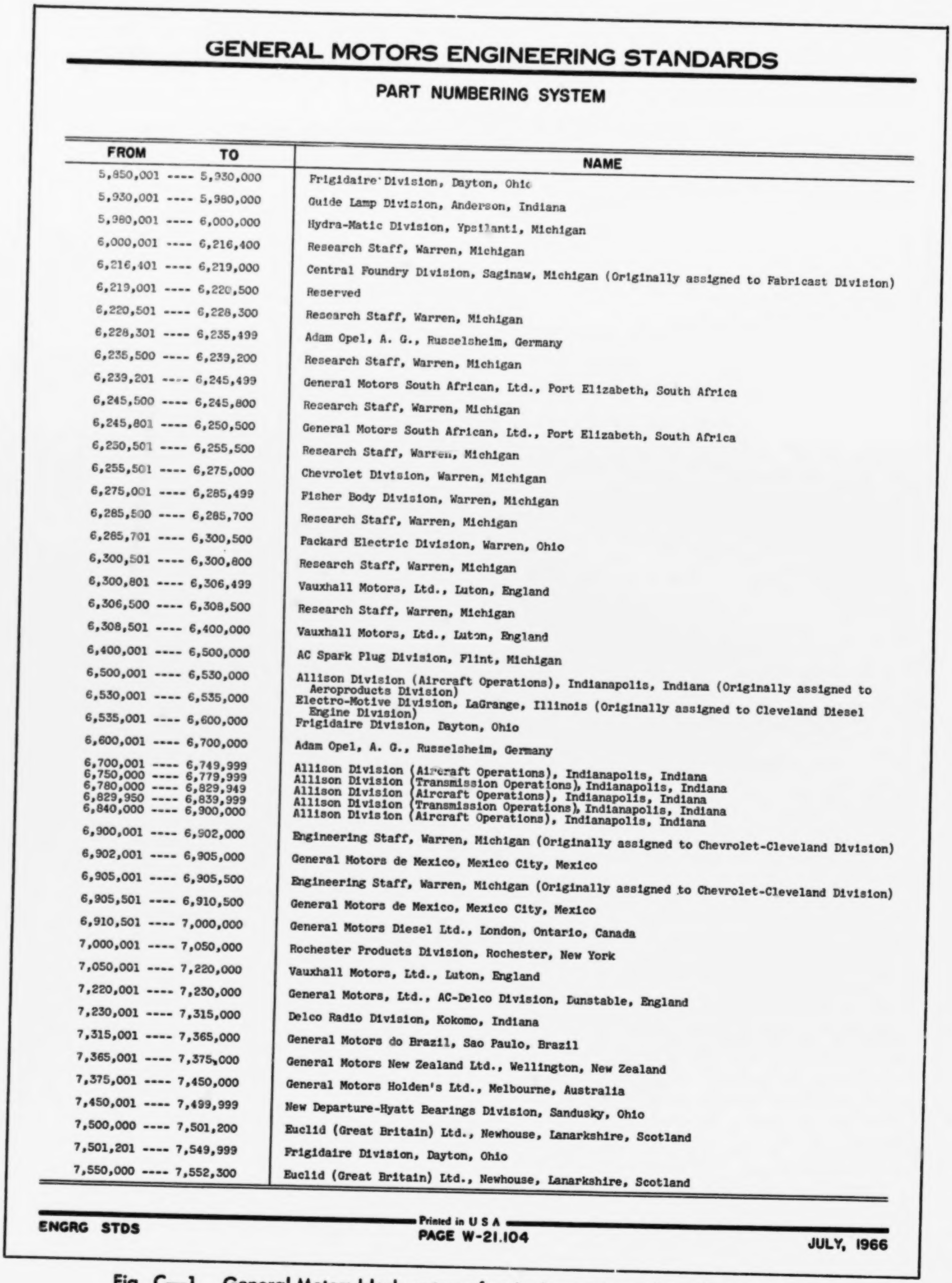
Fig. C—1. General Motors block system of assigning parts numbers (Page 3 of 5)



GENERAL MOTORS ENGINEERING STANDARDS

PART NUMBERING SYSTEM

FROM	TO	NAME
5,850,001	---- 5,930,000	Frigidaire Division, Dayton, Ohio
5,930,001	---- 5,980,000	Guide Lamp Division, Anderson, Indiana
5,980,001	---- 6,000,000	Hydra-Matic Division, Ypsilanti, Michigan
6,000,001	---- 6,216,400	Research Staff, Warren, Michigan
6,216,401	---- 6,219,000	Central Foundry Division, Saginaw, Michigan (Originally assigned to Fabricast Division)
6,219,001	---- 6,220,500	Reserved
6,220,501	---- 6,228,300	Research Staff, Warren, Michigan
6,228,301	---- 6,235,499	Adam Opel, A. G., Russelsheim, Germany
6,235,500	---- 6,239,200	Research Staff, Warren, Michigan
6,239,201	---- 6,245,499	General Motors South African, Ltd., Port Elizabeth, South Africa
6,245,500	---- 6,245,800	Research Staff, Warren, Michigan
6,245,801	---- 6,250,500	General Motors South African, Ltd., Port Elizabeth, South Africa
6,250,501	---- 6,255,500	Research Staff, Warren, Michigan
6,255,501	---- 6,275,000	Chevrolet Division, Warren, Michigan
6,275,001	---- 6,285,499	Fisher Body Division, Warren, Michigan
6,285,500	---- 6,285,700	Research Staff, Warren, Michigan
6,285,701	---- 6,300,500	Packard Electric Division, Warren, Ohio
6,300,501	---- 6,300,800	Research Staff, Warren, Michigan
6,300,801	---- 6,306,499	Vauxhall Motors, Ltd., Luton, England
6,306,500	---- 6,308,500	Research Staff, Warren, Michigan
6,308,501	---- 6,400,000	Vauxhall Motors, Ltd., Luton, England
6,400,001	---- 6,500,000	AC Spark Plug Division, Flint, Michigan
6,500,001	---- 6,530,000	Allison Division (Aircraft Operations), Indianapolis, Indiana (Originally assigned to Aeroproducts Division)
6,530,001	---- 6,535,000	Electro-Motive Division, LaGrange, Illinois (Originally assigned to Cleveland Diesel Engine Division)
6,535,001	---- 6,600,000	Frigidaire Division, Dayton, Ohio
6,600,001	---- 6,700,000	Adam Opel, A. G., Russelsheim, Germany
6,700,001	---- 6,749,999	Allison Division (Aircraft Operations), Indianapolis, Indiana
6,750,000	---- 6,779,999	Allison Division (Transmission Operations), Indianapolis, Indiana
6,780,000	---- 6,829,949	Allison Division (Aircraft Operations), Indianapolis, Indiana
6,829,950	---- 6,839,999	Allison Division (Transmission Operations), Indianapolis, Indiana
6,840,000	---- 6,900,000	Allison Division (Aircraft Operations), Indianapolis, Indiana
6,900,001	---- 6,902,000	Engineering Staff, Warren, Michigan (Originally assigned to Chevrolet-Cleveland Division)
6,902,001	---- 6,905,000	General Motors de Mexico, Mexico City, Mexico
6,905,001	---- 6,905,500	Engineering Staff, Warren, Michigan (Originally assigned to Chevrolet-Cleveland Division)
6,905,501	---- 6,910,500	General Motors de Mexico, Mexico City, Mexico
6,910,501	---- 7,000,000	General Motors Diesel Ltd., London, Ontario, Canada
7,000,001	---- 7,050,000	Rochester Products Division, Rochester, New York
7,050,001	---- 7,220,000	Vauxhall Motors, Ltd., Luton, England
7,220,001	---- 7,230,000	General Motors, Ltd., AC-Delco Division, Dunstable, England
7,230,001	---- 7,315,000	Delco Radio Division, Kokomo, Indiana
7,315,001	---- 7,365,000	General Motors do Brazil, Sao Paulo, Brazil
7,365,001	---- 7,375,000	General Motors New Zealand Ltd., Wellington, New Zealand
7,375,001	---- 7,450,000	General Motors Holden's Ltd., Melbourne, Australia
7,450,001	---- 7,499,999	New Departure-Hyatt Bearings Division, Sandusky, Ohio
7,500,000	---- 7,501,200	Euclid (Great Britain) Ltd., Newhouse, Lanarkshire, Scotland
7,501,201	---- 7,549,999	Frigidaire Division, Dayton, Ohio
7,550,000	---- 7,552,300	Euclid (Great Britain) Ltd., Newhouse, Lanarkshire, Scotland

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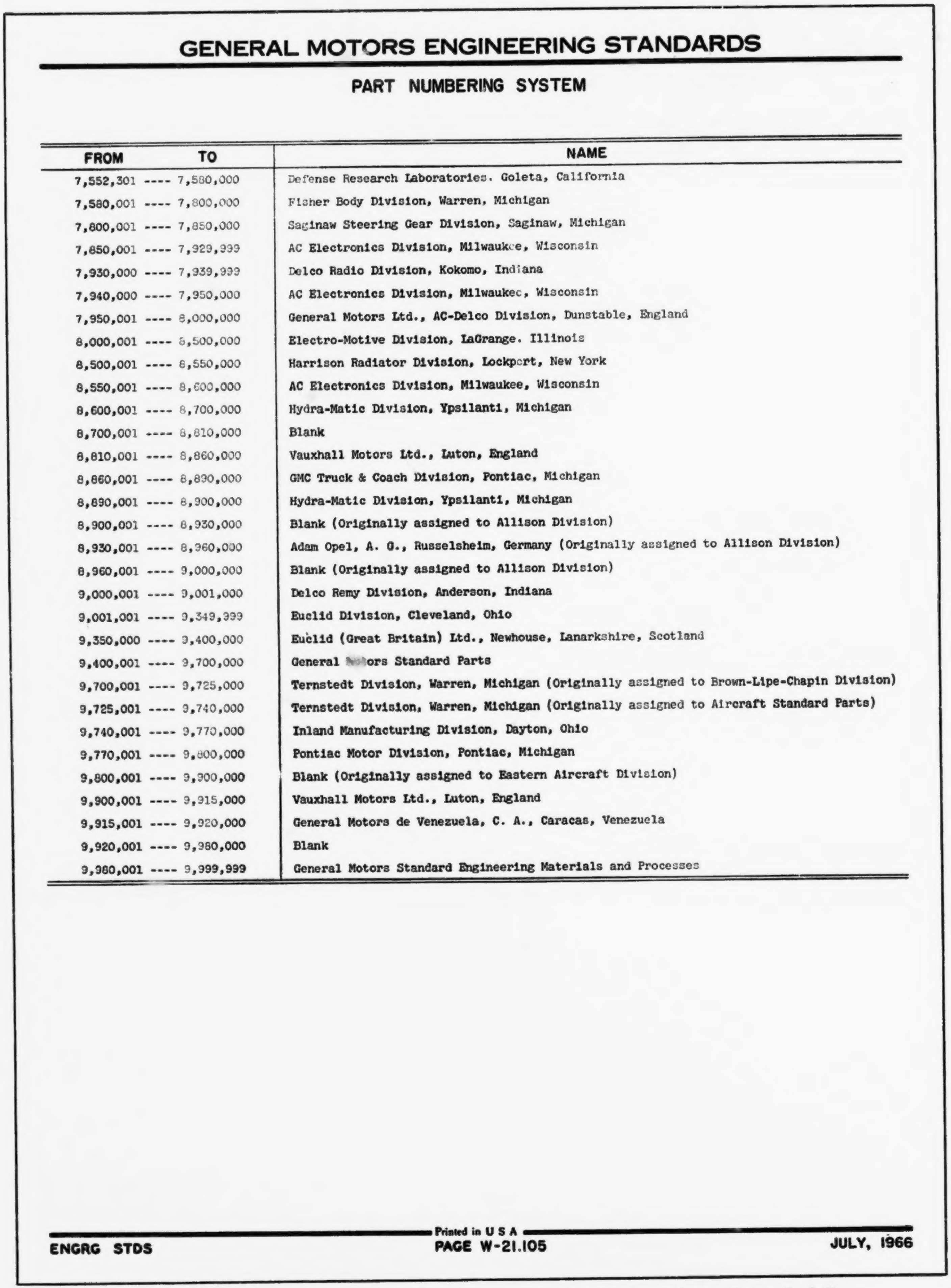
Fig. C—1. General Motors block system of assigning parts numbers (Page 4 of 5)



GENERAL MOTORS ENGINEERING STANDARDS

PART NUMBERING SYSTEM

FROM	TO	NAME
7,552,301 ----	7,580,000	Defense Research Laboratories. Goleta, California
7,580,001 ----	7,800,000	Fisher Body Division, Warren, Michigan
7,800,001 ----	7,850,000	Saginaw Steering Gear Division, Saginaw, Michigan
7,850,001 ----	7,929,999	AC Electronics Division, Milwaukee, Wisconsin
7,930,000 ----	7,939,999	Delco Radio Division, Kokomo, Indiana
7,940,000 ----	7,950,000	AC Electronics Division, Milwaukee, Wisconsin
7,950,001 ----	8,000,000	General Motors Ltd., AC-Delco Division, Dunstable, England
8,000,001 ----	8,500,000	Electro-Motive Division, LaGrange. Illinois
8,500,001 ----	8,550,000	Harrison Radiator Division, Lockport, New York
8,550,001 ----	8,600,000	AC Electronics Division, Milwaukee, Wisconsin
8,600,001 ----	8,700,000	Hydra-Matic Division, Ypsilanti, Michigan
8,700,001 ----	8,810,000	Blank
8,810,001 ----	8,860,000	Vauxhall Motors Ltd., Luton, England
8,860,001 ----	8,890,000	GMC Truck & Coach Division, Pontiac, Michigan
8,890,001 ----	8,900,000	Hydra-Matic Division, Ypsilanti, Michigan
8,900,001 ----	8,930,000	Blank (Originally assigned to Allison Division)
8,930,001 ----	8,960,000	Adam Opel, A. G., Russelsheim, Germany (Originally assigned to Allison Division)
8,960,001 ----	9,000,000	Blank (Originally assigned to Allison Division)
9,000,001 ----	9,001,000	Delco Remy Division, Anderson, Indiana
9,001,001 ----	9,349,999	Euclid Division, Cleveland, Ohio
9,350,000 ----	9,400,000	Euclid (Great Britain) Ltd., Newhouse, Lanarkshire, Scotland
9,400,001 ----	9,700,000	General Motors Standard Parts
9,700,001 ----	9,725,000	Ternstedt Division, Warren, Michigan (Originally assigned to Brown-Lipe-Chapin Division)
9,725,001 ----	9,740,000	Ternstedt Division, Warren, Michigan (Originally assigned to Aircraft Standard Parts)
9,740,001 ----	9,770,000	Inland Manufacturing Division, Dayton, Ohio
9,770,001 ----	9,800,000	Pontiac Motor Division, Pontiac, Michigan
9,800,001 ----	9,900,000	Blank (Originally assigned to Eastern Aircraft Division)
9,900,001 ----	9,915,000	Vauxhall Motors Ltd., Luton, England
9,915,001 ----	9,920,000	General Motors de Venezuela, C. A., Caracas, Venezuela
9,920,001 ----	9,980,000	Blank
9,980,001 ----	9,999,999	General Motors Standard Engineering Materials and Processes

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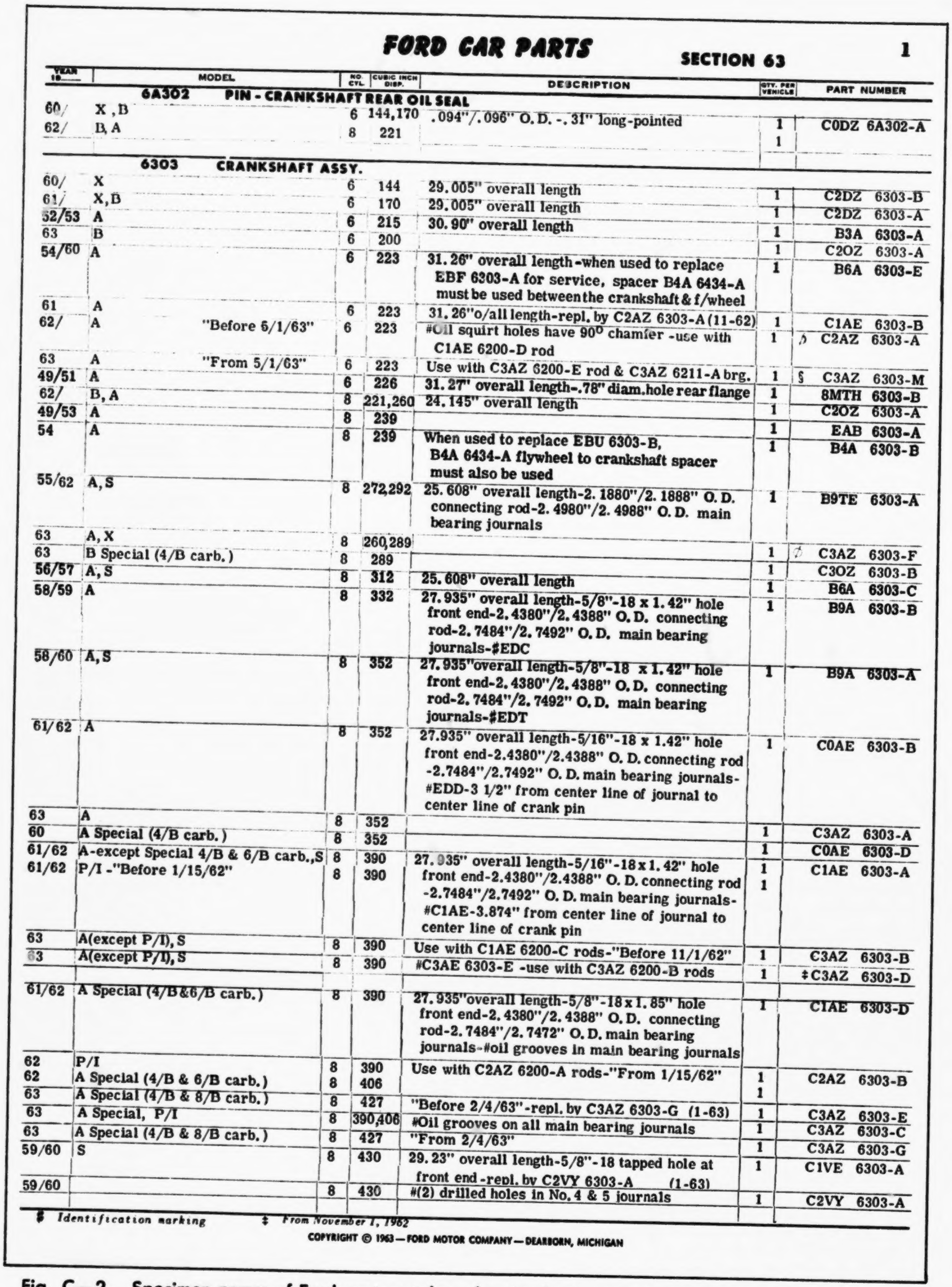
Fig. C—1. General Motors block system of assigning parts numbers (Page 5 of 5)



FORD CAR PARTS

SECTION 63

1

YEAR 19__	MODEL	NO. CYL.	CUBIC INCH DISP.	DESCRIPTION	QTY. PER VEHICLE	PART NUMBER
	6A302 PIN - CRANKSHAFT REAR OIL SEAL					
60/	X ,B	6	144,170	.094"/.096" O.D. -.31" long-pointed	1	C0DZ 6A302-A
62/	B, A	8	221		1	
	6303 CRANKSHAFT ASSY.					
60/	X	6	144	29.005" overall length	1	C2DZ 6303-B
61/	X, B	6	170	29.005" overall length	1	C2DZ 6303-A
52/53	A	6	215	30.90" overall length	1	B3A 6303-A
63	B	6	200		1	C2OZ 6303-A
54/60	A	6	223	31.26" overall length-when used to replace EBF 6303-A for service, spacer B4A 6434-A must be used between the crankshaft & f/wheel	1	B6A 6303-E
61	A	6	223	31.26"o/all length-repl. by C2AZ 6303-A (11-62)	1	C1AE 6303-B
62/	A "Before 5/1/63"	6	223	#Oil squirt holes have 90° chamfer -use with C1AE 6200-D rod	1	C2AZ 6303-A
63	A "From 5/1/63"	6	223	Use with C3AZ 6200-E rod & C3AZ 6211-A brg.	1	§ C3AZ 6303-M
49/51	A	6	226	31.27" overall length-.78" diam. hole rear flange	1	8MTH 6303-B
62/	B, A	8	221,260	24.145" overall length	1	C2OZ 6303-A
49/53	A	8	239		1	EAB 6303-A
54	A	8	239	When used to replace EBU 6303-B, B4A 6434-A flywheel to crankshaft spacer must also be used	1	B4A 6303-B
55/62	A, S	8	272,292	25.608" overall length-2.1880"/2.1888" O.D. connecting rod-2.4980"/2.4988" O.D. main bearing journals	1	B9TE 6303-A
63	A, X	8	260,289		1	C3AZ 6303-F
63	B Special (4/B carb.)	8	289		1	C3OZ 6303-B
56/57	A, S	8	312	25.608" overall length	1	B6A 6303-C
58/59	A	8	332	27.935" overall length-5/8"-18 x 1.42" hole front end-2.4380"/2.4388" O.D. connecting rod-2.7484"/2.7492" O.D. main bearing journals-#EDC	1	B9A 6303-B
58/60	A, S	8	352	27.935" overall length-5/8"-18 x 1.42" hole front end-2.4380"/2.4388" O.D. connecting rod-2.7484"/2.7492" O.D. main bearing journals-#EDT	1	B9A 6303-A
61/62	A	8	352	27.935" overall length-5/16"-18 x 1.42" hole front end-2.4380"/2.4388" O.D. connecting rod -2.7484"/2.7492" O.D. main bearing journals-#EDD-3 1/2" from center line of journal to center line of crank pin	1	C0AE 6303-B
63	A	8	352		1	C3AZ 6303-A
60	A Special (4/B carb.)	8	352		1	C0AE 6303-D
61/62	A-except Special 4/B & 6/B carb.,S	8	390	27.935" overall length-5/16"-18 x 1.42" hole front end-2.4380"/2.4388" O.D. connecting rod -2.7484"/2.7492" O.D. main bearing journals-#C1AE-3.874" from center line of journal to center line of crank pin	1	C1AE 6303-A
61/62	P/I -"Before 1/15/62"	8	390		1	
63	A(except P/I), S	8	390	Use with C1AE 6200-C rods-"Before 11/1/62"	1	C3AZ 6303-B
63	A(except P/I), S	8	390	#C3AE 6303-E -use with C3AZ 6200-B rods	1	‡C3AZ 6303-D
61/62	A Special (4/B&6/B carb.)	8	390	27.935" overall length-5/8"-18 x 1.85" hole front end-2.4380"/2.4388" O.D. connecting rod-2.7484"/2.7472" O.D. main bearing journals-#oil grooves in main bearing journals	1	C1AE 6303-D
62	P/I	8	390	Use with C2AZ 6200-A rods-"From 1/15/62"	1	C2AZ 6303-B
62	A Special (4/B & 6/B carb.)	8	406		1	
63	A Special (4/B & 8/B carb.)	8	427	"Before 2/4/63"-repl. by C3AZ 6303-G (1-63)	1	C3AZ 6303-E
63	A Special, P/I	8	390,406	#Oil grooves on all main bearing journals	1	C3AZ 6303-C
63	A Special (4/B & 8/B carb.)	8	427	"From 2/4/63"	1	C3AZ 6303-G
59/60	S	8	430	29.23" overall length-5/8"-18 tapped hole at front end-repl. by C2VY 6303-A (1-63)	1	C1VE 6303-A
59/60		8	430	#(2) drilled holes in No. 4 & 5 journals	1	C2VY 6303-A

Identification marking   ‡ *From November 1, 1962*

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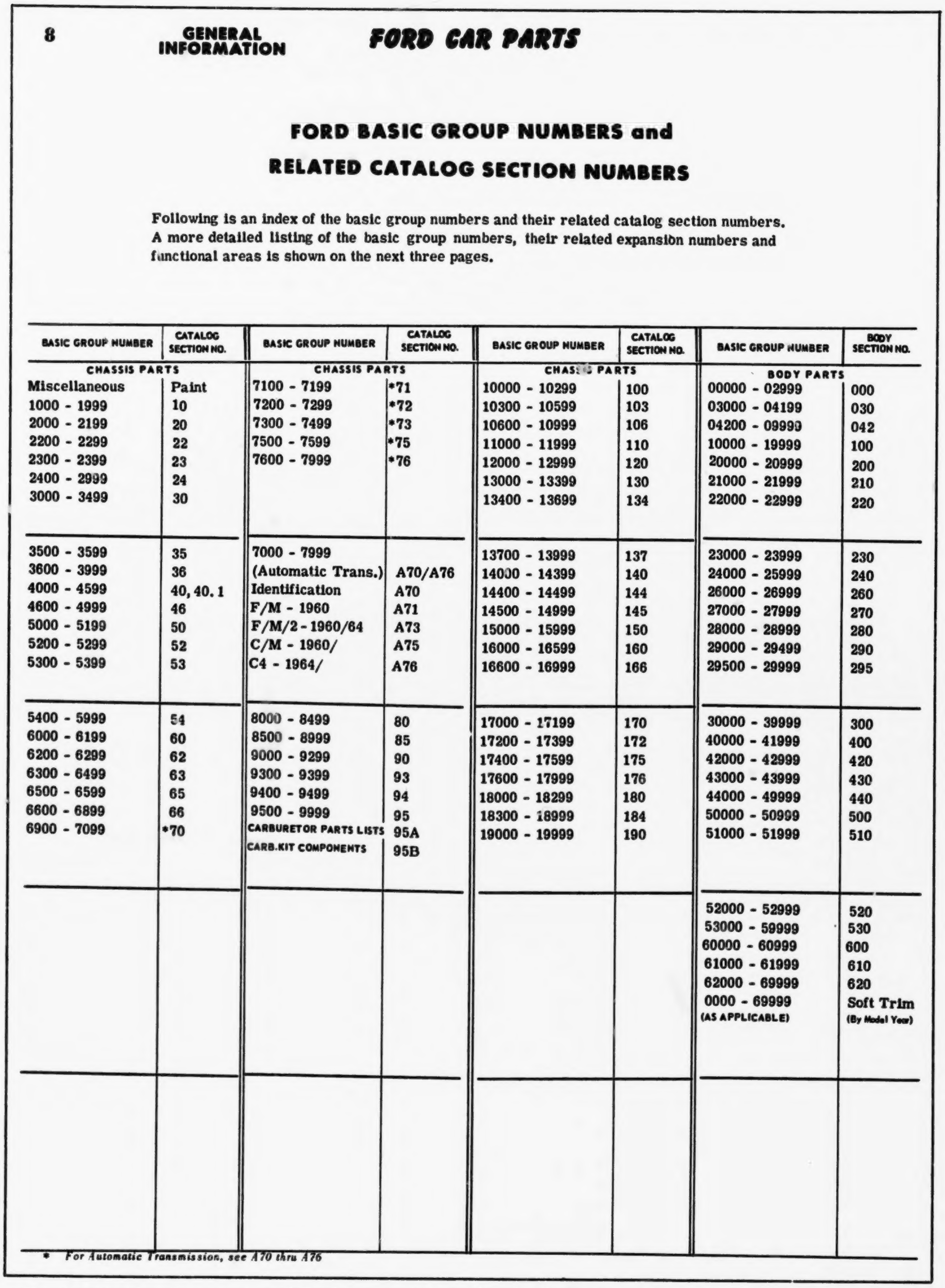
Fig. C—2. Specimen pages of Ford parts catalog, showing basic grouping arrangement (Page 1 of 2)



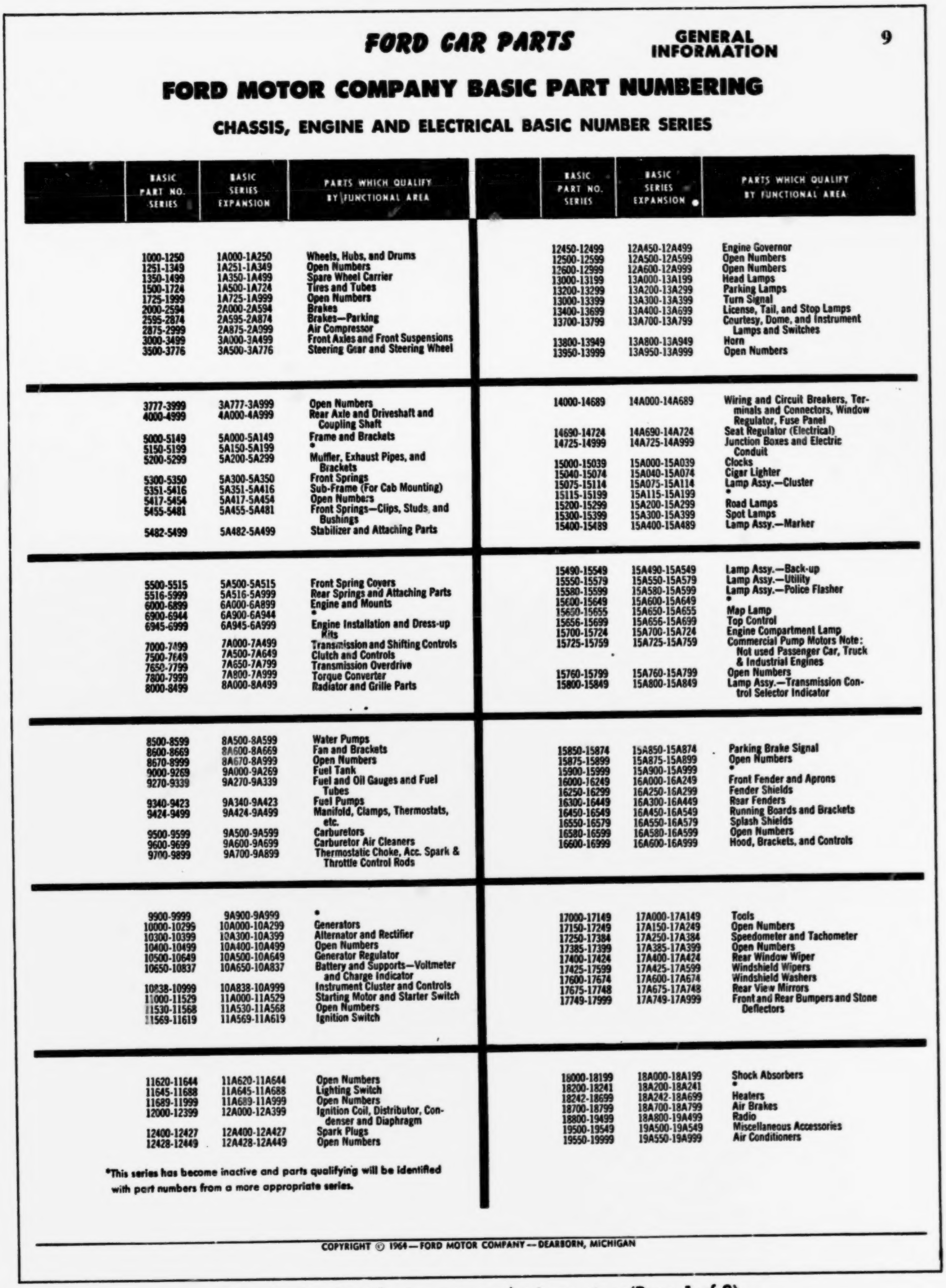
FORD BASIC GROUP NUMBERS and RELATED CATALOG SECTION NUMBERS

Following is an index of the basic group numbers and their related catalog section numbers. A more detailed listing of the basic group numbers, their related expansion numbers and functional areas is shown on the next three pages.

BASIC GROUP NUMBER	CATALOG SECTION NO.	BASIC GROUP NUMBER	CATALOG SECTION NO.	BASIC GROUP NUMBER	CATALOG SECTION NO.	BASIC GROUP NUMBER	BODY SECTION NO.
CHASSIS PARTS		CHASSIS PARTS		CHASSIS PARTS		BODY PARTS	
Miscellaneous	Paint	7100 - 7199	*71	10000 - 10299	100	00000 - 02999	000
1000 - 1999	10	7200 - 7299	*72	10300 - 10599	103	03000 - 04199	030
2000 - 2199	20	7300 - 7499	*73	10600 - 10999	106	04200 - 09999	042
2200 - 2299	22	7500 - 7599	*75	11000 - 11999	110	10000 - 19999	100
2300 - 2399	23	7600 - 7999	*76	12000 - 12999	120	20000 - 20999	200
2400 - 2999	24			13000 - 13399	130	21000 - 21999	210
3000 - 3499	30			13400 - 13699	134	22000 - 22999	220
3500 - 3599	35	7000 - 7999		13700 - 13999	137	23000 - 23999	230
3600 - 3999	36	(Automatic Trans.)	A70/A76	14000 - 14399	140	24000 - 25999	240
4000 - 4599	40, 40.1	Identification	A70	14400 - 14499	144	26000 - 26999	260
4600 - 4999	46	F/M - 1960	A71	14500 - 14999	145	27000 - 27999	270
5000 - 5199	50	F/M/2 - 1960/64	A73	15000 - 15999	150	28000 - 28999	280
5200 - 5299	52	C/M - 1960/	A75	16000 - 16599	160	29000 - 29499	290
5300 - 5399	53	C4 - 1964/	A76	16600 - 16999	166	29500 - 29999	295
5400 - 5999	54	8000 - 8499	80	17000 - 17199	170	30000 - 39999	300
6000 - 6199	60	8500 - 8999	85	17200 - 17399	172	40000 - 41999	400
6200 - 6299	62	9000 - 9299	90	17400 - 17599	175	42000 - 42999	420
6300 - 6499	63	9300 - 9399	93	17600 - 17999	176	43000 - 43999	430
6500 - 6599	65	9400 - 9499	94	18000 - 18299	180	44000 - 49999	440
6600 - 6899	66	9500 - 9999	95	18300 - 18999	184	50000 - 50999	500
6900 - 7099	*70	CARBURETOR PARTS LISTS	95A	19000 - 19999	190	51000 - 51999	510
		CARB.KIT COMPONENTS	95B				
						52000 - 52999	520
						53000 - 59999	530
						60000 - 60999	600
						61000 - 61999	610
						62000 - 69999	620
						0000 - 69999 (AS APPLICABLE)	Soft Trim (By Model Year)

* *For Automatic Transmission, see A70 thru A76*

Fig. C—2. Specimen pages of Ford parts catalog, showing basic grouping arrangement (Page 2 of 2)



FORD CAR PARTS GENERAL INFORMATION 9

FORD MOTOR COMPANY BASIC PART NUMBERING

CHASSIS, ENGINE AND ELECTRICAL BASIC NUMBER SERIES

BASIC PART NO. SERIES	BASIC SERIES EXPANSION	PARTS WHICH QUALIFY BY FUNCTIONAL AREA
1000-1250	1A000-1A250	Wheels, Hubs, and Drums
1251-1349	1A251-1A349	Open Numbers
1350-1499	1A350-1A499	Spare Wheel Carrier
1500-1724	1A500-1A724	Tires and Tubes
1725-1999	1A725-1A999	Open Numbers
2000-2594	2A000-2A594	Brakes
2595-2874	2A595-2A874	Brakes—Parking
2875-2999	2A875-2A999	Air Compressor
3000-3499	3A000-3A499	Front Axles and Front Suspensions
3500-3776	3A500-3A776	Steering Gear and Steering Wheel
3777-3999	3A777-3A999	Open Numbers
4000-4999	4A000-4A999	Rear Axle and Driveshaft and Coupling Shaft
5000-5149	5A000-5A149	Frame and Brackets
5150-5199	5A150-5A199	*
5200-5299	5A200-5A299	Muffler, Exhaust Pipes, and Brackets
5300-5350	5A300-5A350	Front Springs
5351-5416	5A351-5A416	Sub-Frame (For Cab Mounting)
5417-5454	5A417-5A454	Open Numbers
5455-5481	5A455-5A481	Front Springs—Clips, Studs, and Bushings
5482-5499	5A482-5A499	Stabilizer and Attaching Parts
5500-5515	5A500-5A515	Front Spring Covers
5516-5999	5A516-5A999	Rear Springs and Attaching Parts
6000-6899	6A000-6A899	Engine and Mounts
6900-6944	6A900-6A944	*
6945-6999	6A945-6A999	Engine Installation and Dress-up Kits
7000-7499	7A000-7A499	Transmission and Shifting Controls
7500-7649	7A500-7A649	Clutch and Controls
7650-7799	7A650-7A799	Transmission Overdrive
7800-7999	7A800-7A999	Torque Converter
8000-8499	8A000-8A499	Radiator and Grille Parts
8500-8599	8A500-8A599	Water Pumps
8600-8669	8A600-8A669	Fan and Brackets
8670-8999	8A670-8A999	Open Numbers
9000-9269	9A000-9A269	Fuel Tank
9270-9339	9A270-9A339	Fuel and Oil Gauges and Fuel Tubes
9340-9423	9A340-9A423	Fuel Pumps
9424-9499	9A424-9A499	Manifold, Clamps, Thermostats, etc.
9500-9599	9A500-9A599	Carburetors
9600-9699	9A600-9A699	Carburetor Air Cleaners
9700-9899	9A700-9A899	Thermostatic Choke, Acc. Spark & Throttle Control Rods
9900-9999	9A900-9A999	*
10000-10299	10A000-10A299	Generators
10300-10399	10A300-10A399	Alternator and Rectifier
10400-10499	10A400-10A499	Open Numbers
10500-10649	10A500-10A649	Generator Regulator
10650-10837	10A650-10A837	Battery and Supports—Voltmeter and Charge Indicator
10838-10999	10A838-10A999	Instrument Cluster and Controls
11000-11529	11A000-11A529	Starting Motor and Starter Switch
11530-11568	11A530-11A568	Open Numbers
11569-11619	11A569-11A619	Ignition Switch
11620-11644	11A620-11A644	Open Numbers
11645-11688	11A645-11A688	Lighting Switch
11689-11999	11A689-11A999	Open Numbers
12000-12399	12A000-12A399	Ignition Coil, Distributor, Condenser and Diaphragm
12400-12427	12A400-12A427	Spark Plugs
12428-12449	12A428-12A449	Open Numbers

BASIC PART NO. SERIES	BASIC SERIES EXPANSION	PARTS WHICH QUALIFY BY FUNCTIONAL AREA
12450-12499	12A450-12A499	Engine Governor
12500-12599	12A500-12A599	Open Numbers
12600-12999	12A600-12A999	Open Numbers
13000-13199	13A000-13A199	Head Lamps
13200-13299	13A200-13A299	Parking Lamps
13000-13399	13A300-13A399	Turn Signal
13400-13699	13A400-13A699	License, Tail, and Stop Lamps
13700-13799	13A700-13A799	Courtesy, Dome, and Instrument Lamps and Switches
13800-13949	13A800-13A949	Horn
13950-13999	13A950-13A999	Open Numbers
14000-14689	14A000-14A689	Wiring and Circuit Breakers, Terminals and Connectors, Window Regulator, Fuse Panel
14690-14724	14A690-14A724	Seat Regulator (Electrical)
14725-14999	14A725-14A999	Junction Boxes and Electric Conduit
15000-15039	15A000-15A039	Clocks
15040-15074	15A040-15A074	Cigar Lighter
15075-15114	15A075-15A114	Lamp Assy.—Cluster
15115-15199	15A115-15A199	*
15200-15299	15A200-15A299	Road Lamps
15300-15399	15A300-15A399	Spot Lamps
15400-15489	15A400-15A489	Lamp Assy.—Marker
15490-15549	15A490-15A549	Lamp Assy.—Back-up
15550-15579	15A550-15A579	Lamp Assy.—Utility
15580-15599	15A580-15A599	Lamp Assy.—Police Flasher
15600-15649	15A600-15A649	*
15650-15655	15A650-15A655	Map Lamp
15656-15699	15A656-15A699	Top Control
15700-15724	15A700-15A724	Engine Compartment Lamp
15725-15759	15A725-15A759	Commercial Pump Motors Note: Not used Passenger Car, Truck & Industrial Engines
15760-15799	15A760-15A799	Open Numbers
15800-15849	15A800-15A849	Lamp Assy.—Transmission Control Selector Indicator
15850-15874	15A850-15A874	Parking Brake Signal
15875-15899	15A875-15A899	Open Numbers
15900-15999	15A900-15A999	*
16000-16249	16A000-16A249	Front Fender and Aprons
16250-16299	16A250-16A299	Fender Shields
16300-16449	16A300-16A449	Rear Fenders
16450-16549	16A450-16A549	Running Boards and Brackets
16550-16579	16A550-16A579	Splash Shields
16580-16599	16A580-16A599	Open Numbers
16600-16999	16A600-16A999	Hood, Brackets, and Controls
17000-17149	17A000-17A149	Tools
17150-17249	17A150-17A249	Open Numbers
17250-17384	17A250-17A384	Speedometer and Tachometer
17385-17399	17A385-17A399	Open Numbers
17400-17424	17A400-17A424	Rear Window Wiper
17425-17599	17A425-17A599	Windshield Wipers
17600-17674	17A600-17A674	Windshield Washers
17675-17748	17A675-17A748	Rear View Mirrors
17749-17999	17A749-17A999	Front and Rear Bumpers and Stone Deflectors
18000-18199	18A000-18A199	Shock Absorbers
18200-18241	18A200-18A241	*
18242-18699	18A242-18A699	Heaters
18700-18799	18A700-18A799	Air Brakes
18800-19499	18A800-19A499	Radio
19500-19549	19A500-19A549	Miscellaneous Accessories
19550-19999	19A550-19A999	Air Conditioners

*This series has become inactive and parts qualifying will be identified with part numbers from a more appropriate series.

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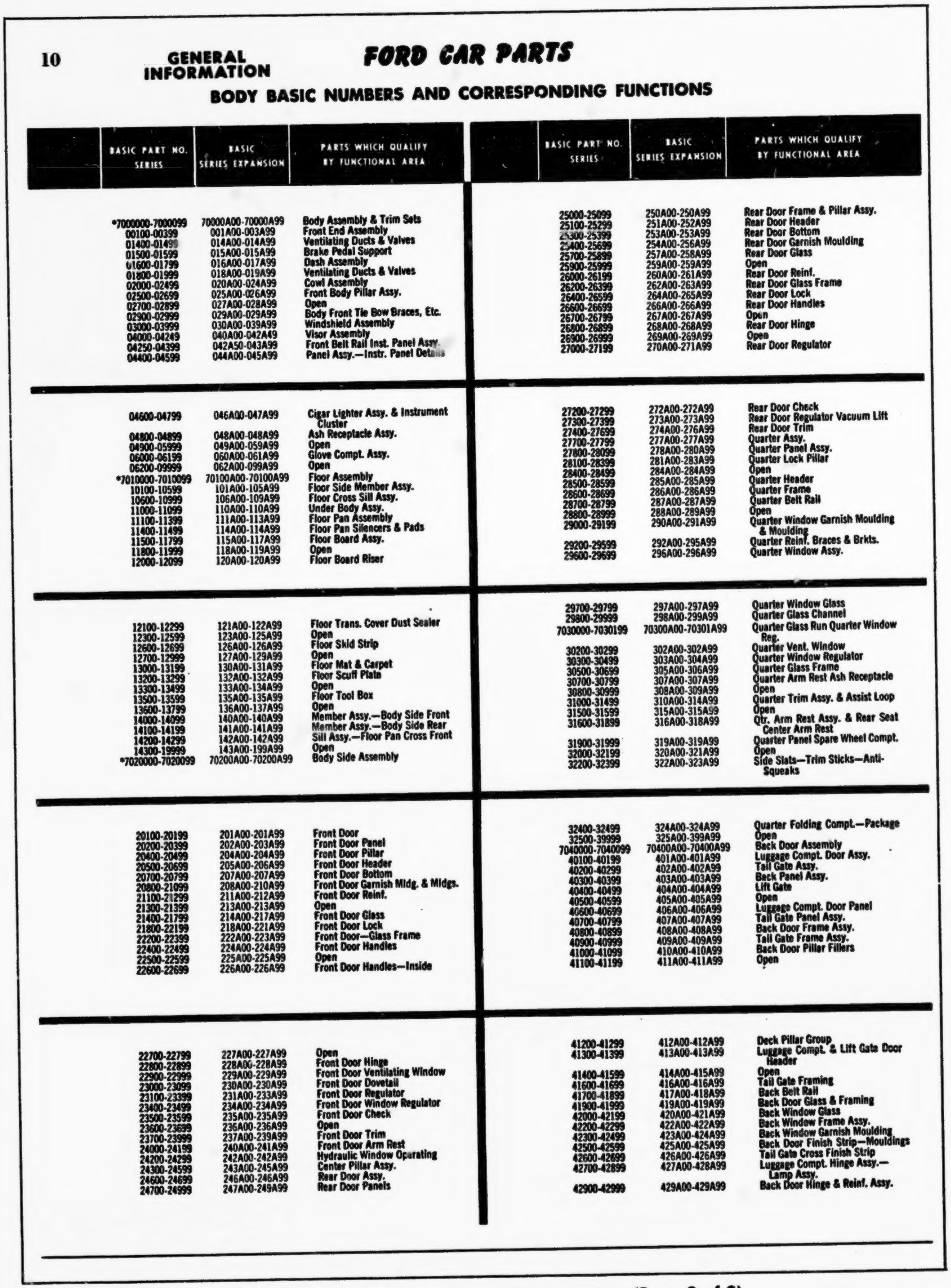
Fig. C—3. Ford basic parts numbering system (Page 1 of 3)



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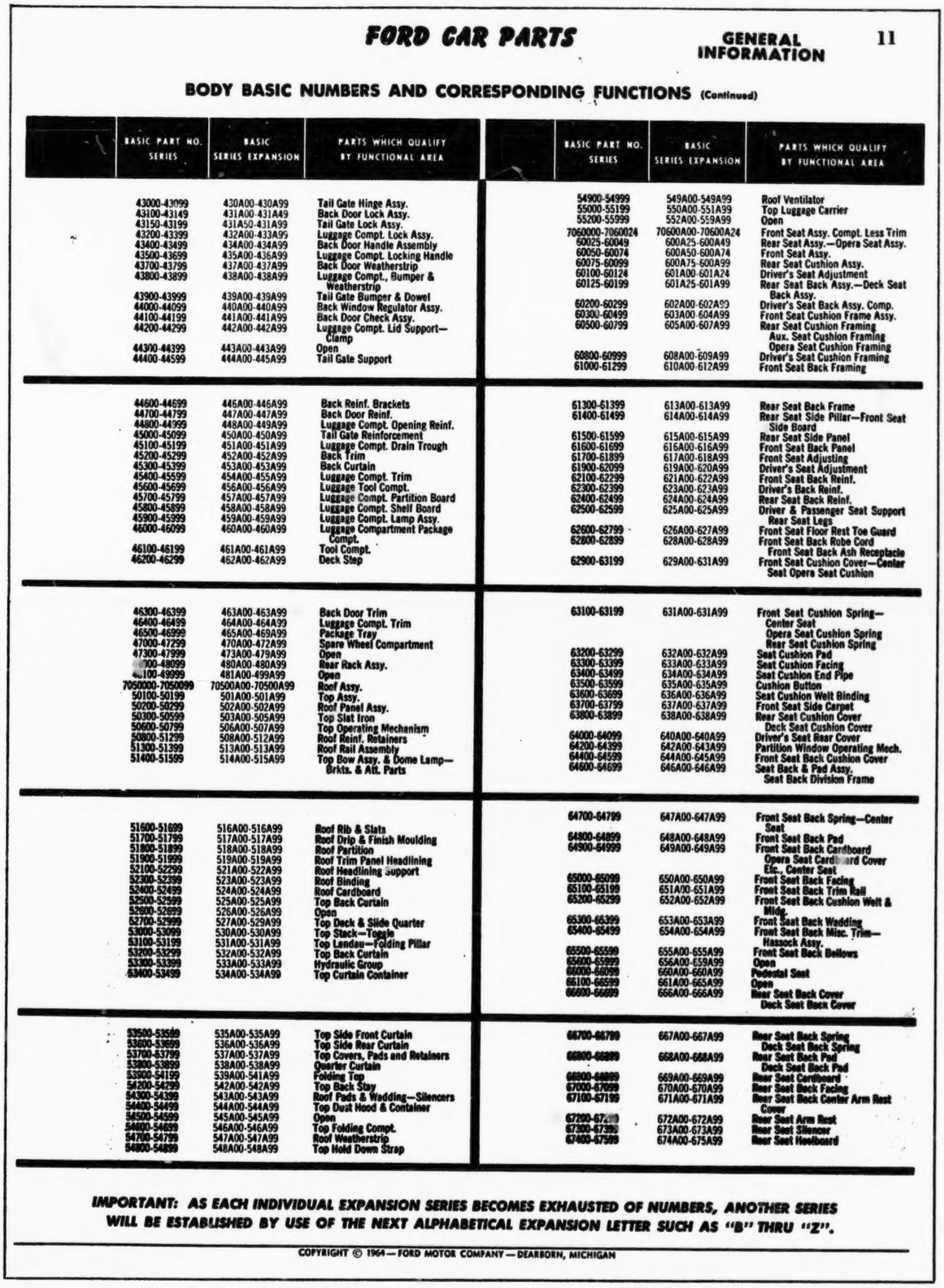
GENERAL INFORMATION

FORD CAR PARTS

BODY BASIC NUMBERS AND CORRESPONDING FUNCTIONS

BASIC PART NO. SERIES	BASIC SERIES EXPANSION	PARTS WHICH QUALIFY BY FUNCTIONAL AREA
*7000000-7000099	70000A00-70000A99	Body Assembly & Trim Sets
00100-00399	001A00-003A99	Front End Assembly
01400-01499	014A00-014A99	Ventilating Ducts & Valves
01500-01599	015A00-015A99	Brake Pedal Support
01600-01799	016A00-017A99	Dash Assembly
01800-01999	018A00-019A99	Ventilating Ducts & Valves
02000-02499	020A00-024A99	Cowl Assembly
02500-02699	025A00-026A99	Front Body Pillar Assy.
02700-02899	027A00-028A99	Open
02900-02999	029A00-029A99	Body Front Tie Bow Braces, Etc.
03000-03999	030A00-039A99	Windshield Assembly
04000-04249	040A00-042A49	Visor Assembly
04250-04399	042A50-043A99	Front Belt Rail Inst. Panel Assy.
04400-04599	044A00-045A99	Panel Assy.—Instr. Panel Details
04600-04799	046A00-047A99	Cigar Lighter Assy. & Instrument Cluster
04800-04899	048A00-048A99	Ash Receptacle Assy.
04900-05999	049A00-059A99	Open
06000-06199	060A00-061A99	Glove Compt. Assy.
06200-09999	062A00-099A99	Open
*7010000-7010099	70100A00-70100A99	Floor Assembly
10100-10599	101A00-105A99	Floor Side Member Assy.
10600-10999	106A00-109A99	Floor Cross Sill Assy.
11000-11099	110A00-110A99	Under Body Assy.
11100-11399	111A00-113A99	Floor Pan Assembly
11400-11499	114A00-114A99	Floor Pan Silencers & Pads
11500-11799	115A00-117A99	Floor Board Assy.
11800-11999	118A00-119A99	Open
12000-12099	120A00-120A99	Floor Board Riser
12100-12299	121A00-122A99	Floor Trans. Cover Dust Sealer
12300-12599	123A00-125A99	Open
12600-12699	126A00-126A99	Floor Skid Strip
12700-12999	127A00-129A99	Open
13000-13199	130A00-131A99	Floor Mat & Carpet
13200-13299	132A00-132A99	Floor Scuff Plate
13300-13499	133A00-134A99	Open
13500-13599	135A00-135A99	Floor Tool Box
13600-13799	136A00-137A99	Open
14000-14099	140A00-140A99	Member Assy.—Body Side Front
14100-14199	141A00-141A99	Member Assy.—Body Side Rear
14200-14299	142A00-142A99	Sill Assy.—Floor Pan Cross Front
14300-19999	143A00-199A99	Open
*7020000-7020099	70200A00-70200A99	Body Side Assembly
20100-20199	201A00-201A99	Front Door
20200-20399	202A00-203A99	Front Door Panel
20400-20499	204A00-204A99	Front Door Pillar
20500-20699	205A00-206A99	Front Door Header
20700-20799	207A00-207A99	Front Door Bottom
20800-21099	208A00-210A99	Front Door Garnish Mldg. & Mldgs.
21100-21299	211A00-212A99	Front Door Reinf.
21300-21399	213A00-213A99	Open
21400-21799	214A00-217A99	Front Door Glass
21800-22199	218A00-221A99	Front Door Lock
22200-22399	222A00-223A99	Front Door—Glass Frame
22400-22499	224A00-224A99	Front Door Handles
22500-22599	225A00-225A99	Open
22600-22699	226A00-226A99	Front Door Handles—Inside
22700-22799	227A00-227A99	Open
22800-22899	228A00-228A99	Front Door Hinge
22900-22999	229A00-229A99	Front Door Ventilating Window
23000-23099	230A00-230A99	Front Door Dovetail
23100-23399	231A00-233A99	Front Door Regulator
23400-23499	234A00-234A99	Front Door Window Regulator
23500-23599	235A00-235A99	Front Door Check
23600-23699	236A00-236A99	Open
23700-23999	237A00-239A99	Front Door Trim
24000-24199	240A00-241A99	Front Door Arm Rest
24200-24299	242A00-242A99	Hydraulic Window Operating
24300-24599	243A00-245A99	Center Pillar Assy.
24600-24699	246A00-246A99	Rear Door Assy.
24700-24999	247A00-249A99	Rear Door Panels
25000-25099	250A00-250A99	Rear Door Frame & Pillar Assy.
25100-25299	251A00-252A99	Rear Door Header
25300-25399	253A00-253A99	Rear Door Bottom
25400-25699	254A00-256A99	Rear Door Garnish Moulding
25700-25899	257A00-258A99	Rear Door Glass
25900-25999	259A00-259A99	Open
26000-26199	260A00-261A99	Rear Door Reinf.
26200-26399	262A00-263A99	Rear Door Glass Frame
26400-26599	264A00-265A99	Rear Door Lock
26600-26699	266A00-266A99	Rear Door Handles
26700-26799	267A00-267A99	Open
26800-26899	268A00-268A99	Rear Door Hinge
26900-26999	269A00-269A99	Open
27000-27199	270A00-271A99	Rear Door Regulator
27200-27299	272A00-272A99	Rear Door Check
27300-27399	273A00-273A99	Rear Door Regulator Vacuum Lift
27400-27699	274A00-276A99	Rear Door Trim
27700-27799	277A00-277A99	Quarter Assy.
27800-28099	278A00-280A99	Quarter Panel Assy.
28100-28399	281A00-283A99	Quarter Lock Pillar
28400-28499	284A00-284A99	Open
28500-28599	285A00-285A99	Quarter Header
28600-28699	286A00-286A99	Quarter Frame
28700-28799	287A00-287A99	Quarter Belt Rail
28800-28999	288A00-289A99	Open
29000-29199	290A00-291A99	Quarter Window Garnish Moulding & Moulding
29200-29599	292A00-295A99	Quarter Reinf. Braces & Brkts.
29600-29699	296A00-296A99	Quarter Window Assy.
29700-29799	297A00-297A99	Quarter Window Glass
29800-29999	298A00-299A99	Quarter Glass Channel
7030000-7030199	70300A00-70301A99	Quarter Glass Run Quarter Window Reg.
30200-30299	302A00-302A99	Quarter Vent. Window
30300-30499	303A00-304A99	Quarter Window Regulator
30500-30699	305A00-306A99	Quarter Glass Frame
30700-30799	307A00-307A99	Quarter Arm Rest Ash Receptacle
30800-30999	308A00-309A99	Open
31000-31499	310A00-314A99	Quarter Trim Assy. & Assist Loop
31500-31599	315A00-315A99	Open
31600-31899	316A00-318A99	Qtr. Arm Rest Assy. & Rear Seat Center Arm Rest
31900-31999	319A00-319A99	Quarter Panel Spare Wheel Compt.
32000-32199	320A00-321A99	Open
32200-32399	322A00-323A99	Side Slats—Trim Sticks—Anti-Squeaks
32400-32499	324A00-324A99	Quarter Folding Compt.—Package
32500-39999	325A00-399A99	Open
7040000-7040099	70400A00-70400A99	Back Door Assembly
40100-40199	401A00-401A99	Luggage Compt. Door Assy.
40200-40299	402A00-402A99	Tail Gate Assy.
40300-40399	403A00-403A99	Back Panel Assy.
40400-40499	404A00-404A99	Lift Gate
40500-40599	405A00-405A99	Open
40600-40699	406A00-406A99	Luggage Compt. Door Panel
40700-40799	407A00-407A99	Tail Gate Panel Assy.
40800-40899	408A00-408A99	Back Door Frame Assy.
40900-40999	409A00-409A99	Tail Gate Frame Assy.
41000-41099	410A00-410A99	Back Door Pillar Fillers
41100-41199	411A00-411A99	Open
41200-41299	412A00-412A99	Deck Pillar Group
41300-41399	413A00-413A99	Luggage Compt. & Lift Gate Door Header
41400-41599	414A00-415A99	Open
41600-41699	416A00-416A99	Tail Gate Framing
41700-41899	417A00-418A99	Back Belt Rail
41900-41999	419A00-419A99	Back Door Glass & Framing
42000-42199	420A00-421A99	Back Window Glass
42200-42299	422A00-422A99	Back Window Frame Assy.
42300-42499	423A00-424A99	Back Window Garnish Moulding
42500-42599	425A00-425A99	Back Door Finish Strip—Mouldings
42600-42699	426A00-426A99	Tail Gate Cross Finish Strip
42700-42899	427A00-428A99	Luggage Compt. Hinge Assy.—Lamp Assy.
42900-42999	429A00-429A99	Back Door Hinge & Reinf. Assy.

Fig. C—3. Ford basic parts numbering system (Page 2 of 3)



FORD CAR PARTS

GENERAL INFORMATION 11

BODY BASIC NUMBERS AND CORRESPONDING FUNCTIONS (Continued)

BASIC PART NO. SERIES	BASIC SERIES EXPANSION	PARTS WHICH QUALIFY BY FUNCTIONAL AREA
43000-43099	430A00-430A99	Tail Gate Hinge Assy.
43100-43149	431A00-431A49	Back Door Lock Assy.
43150-43199	431A50-431A99	Tail Gate Lock Assy.
43200-43399	432A00-433A99	Luggage Compt. Lock Assy.
43400-43499	434A00-434A99	Back Door Handle Assembly
43500-43699	435A00-436A99	Luggage Compt. Locking Handle
43700-43799	437A00-437A99	Back Door Weatherstrip
43800-43899	438A00-438A99	Luggage Compt., Bumper & Weatherstrip
43900-43999	439A00-439A99	Tail Gate Bumper & Dowel
44000-44099	440A00-440A99	Back Window Regulator Assy.
44100-44199	441A00-441A99	Back Door Check Assy.
44200-44299	442A00-442A99	Luggage Compt. Lid Support—Clamp
44300-44399	443A00-443A99	Open
44400-44599	444A00-445A99	Tail Gate Support
44600-44699	446A00-446A99	Back Reinf. Brackets
44700-44799	447A00-447A99	Back Door Reinf.
44800-44999	448A00-449A99	Luggage Compt. Opening Reinf.
45000-45099	450A00-450A99	Tail Gate Reinforcement
45100-45199	451A00-451A99	Luggage Compt. Drain Trough
45200-45299	452A00-452A99	Back Trim
45300-45399	453A00-453A99	Back Curtain
45400-45599	454A00-455A99	Luggage Compt. Trim
45600-45699	456A00-456A99	Luggage Tool Compt.
45700-45799	457A00-457A99	Luggage Compt. Partition Board
45800-45899	458A00-458A99	Luggage Compt. Shelf Board
45900-45999	459A00-459A99	Luggage Compt. Lamp Assy.
46000-46099	460A00-460A99	Luggage Compartment Package Compt.
46100-46199	461A00-461A99	Tool Compt.
46200-46299	462A00-462A99	Deck Step
46300-46399	463A00-463A99	Back Door Trim
46400-46499	464A00-464A99	Luggage Compt. Trim
46500-46999	465A00-469A99	Package Tray
47000-47299	470A00-472A99	Spare Wheel Compartment
47300-47999	473A00-479A99	Open
48000-48099	480A00-480A99	Rear Rack Assy.
48100-49999	481A00-499A99	Open
7050000-7050099	70500A00-70500A99	Roof Assy.
50100-50199	501A00-501A99	Top Assy.
50200-50299	502A00-502A99	Roof Panel Assy.
50300-50599	503A00-505A99	Top Slat Iron
50600-50799	506A00-507A99	Top Operating Mechanism
50800-51299	508A00-512A99	Roof Reinf. Retainers
51300-51399	513A00-513A99	Roof Rail Assembly
51400-51599	514A00-515A99	Top Bow Assy. & Dome Lamp—Brkts. & Att. Parts
51600-51699	516A00-516A99	Roof Rib & Slats
51700-51799	517A00-517A99	Roof Drip & Finish Moulding
51800-51899	518A00-518A99	Roof Partition
51900-51999	519A00-519A99	Roof Trim Panel Headlining
52100-52299	521A00-522A99	Roof Headlining Support
52300-52399	523A00-523A99	Roof Binding
52400-52499	524A00-524A99	Roof Cardboard
52500-52599	525A00-525A99	Top Back Curtain
52600-52699	526A00-526A99	Open
52700-52999	527A00-529A99	Top Deck & Slide Quarter
53000-53099	530A00-530A99	Top Stack—Toggle
53100-53199	531A00-531A99	Top Landau—Folding Pillar
53200-53299	532A00-532A99	Top Back Curtain
53300-53399	533A00-533A99	Hydraulic Group
53400-53499	534A00-534A99	Top Curtain Container
53500-53599	535A00-535A99	Top Side Front Curtain
53600-53699	536A00-536A99	Top Side Rear Curtain
53700-63799	537A00-537A99	Top Covers, Pads and Retainers
53800-53899	538A00-538A99	Quarter Curtain
53900-54199	539A00-541A99	Folding Top
54200-54299	542A00-542A99	Top Back Stay
54300-54399	543A00-543A99	Roof Pads & Wadding—Silencers
54400-54499	544A00-544A99	Top Dust Hood & Container
54500-54599	545A00-545A99	Open
54600-54699	546A00-546A99	Top Folding Compt.
54700-54799	547A00-547A99	Roof Weatherstrip
54800-54899	548A00-548A99	Top Hold Down Strap
54900-54999	549A00-549A99	Roof Ventilator
55000-55199	550A00-551A99	Top Luggage Carrier
55200-55999	552A00-559A99	Open
7060000-7060024	70600A00-70600A24	Front Seat Assy. Compt. Less Trim
60025-60049	600A25-600A49	Rear Seat Assy.—Opera Seat Assy.
60050-60074	600A50-600A74	Front Seat Assy.
60075-60099	600A75-600A99	Rear Seat Cushion Assy.
60100-60124	601A00-601A24	Driver's Seat Adjustment
60125-60199	601A25-601A99	Rear Seat Back Assy.—Deck Seat Back Assy.
60200-60299	602A00-602A99	Driver's Seat Back Assy. Comp.
60300-60499	603A00-604A99	Front Seat Cushion Frame Assy.
60500-60799	605A00-607A99	Rear Seat Cushion Framing Aux. Seat Cushion Framing Opera Seat Cushion Framing
60800-60999	608A00-609A99	Driver's Seat Cushion Framing
61000-61299	610A00-612A99	Front Seat Back Framing
61300-61399	613A00-613A99	Rear Seat Back Frame
61400-61499	614A00-614A99	Rear Seat Side Pillar—Front Seat Side Board
61500-61599	615A00-615A99	Rear Seat Side Panel
61600-61699	616A00-616A99	Front Seat Back Panel
61700-61899	617A00-618A99	Front Seat Adjusting
61900-62099	619A00-620A99	Driver's Seat Adjustment
62100-62299	621A00-622A99	Front Seat Back Reinf.
62300-62399	623A00-623A99	Driver's Back Reinf.
62400-62499	624A00-624A99	Rear Seat Back Reinf.
62500-62599	625A00-625A99	Driver & Passenger Seat Support Rear Seat Legs
62600-62799	626A00-627A99	Front Seat Floor Rest Toe Guard
62800-62899	628A00-628A99	Front Seat Back Robe Cord Front Seat Back Ash Receptacle
62900-63199	629A00-631A99	Front Seat Cushion Cover—Center Seat Opera Seat Cushion
63100-63199	631A00-631A99	Front Seat Cushion Spring—Center Seat Opera Seat Cushion Spring Rear Seat Cushion Spring
63200-63299	632A00-632A99	Seat Cushion Pad
63300-63399	633A00-633A99	Seat Cushion Facing
63400-63499	634A00-634A99	Seat Cushion End Pipe
63500-63599	635A00-635A99	Cushion Button
63600-63699	636A00-636A99	Seat Cushion Welt Binding
63700-63799	637A00-637A99	Front Seat Side Carpet
63800-63899	638A00-638A99	Rear Seat Cushion Cover Deck Seat Cushion Cover
64000-64099	640A00-640A99	Driver's Seat Rear Cover
64200-64399	642A00-643A99	Partition Window Operating Mech.
64400-64599	644A00-645A99	Front Seat Back Cushion Cover
64600-64699	646A00-646A99	Seat Back & Pad Assy. Seat Back Division Frame
64700-64799	647A00-647A99	Front Seat Back Spring—Center Seat
64800-64899	648A00-648A99	Front Seat Back Pad
64900-64999	649A00-649A99	Front Seat Back Cardboard Opera Seat Cardboard Cover Etc., Center Seat
65000-65099	650A00-650A99	Front Seat Back Facing
65100-65199	651A00-651A99	Front Seat Back Trim Rail
65200-65299	652A00-652A99	Front Seat Back Cushion Welt & Mldg.
65300-65399	653A00-653A99	Front Seat Back Wadding
65400-65499	654A00-654A99	Front Seat Back Misc. Trim—Hassock Assy.
65500-65599	655A00-655A99	Front Seat Back Bellows
65600-65999	656A00-659A99	Open
66000-66099	660A00-660A99	Pedestal Seat
66100-66599	661A00-665A99	Open
66600-66699	666A00-666A99	Rear Seat Back Cover Deck Seat Back Cover
66700-66799	667A00-667A99	Rear Seat Back Spring Deck Seat Back Spring
66800-66899	668A00-668A99	Rear Seat Back Pad Deck Seat Back Pad
66900-66999	669A00-669A99	Rear Seat Cardboard
67000-67099	670A00-670A99	Rear Seat Back Facing
67100-67199	671A00-671A99	Rear Seat Back Center Arm Rest Cover
67200-67299	672A00-672A99	Rear Seat Arm Rest
67300-67399	673A00-673A99	Rear Seat Silencer
67400-67599	674A00-675A99	Rear Seat Heelboard

IMPORTANT: AS EACH INDIVIDUAL EXPANSION SERIES BECOMES EXHAUSTED OF NUMBERS, ANOTHER SERIES WILL BE ESTABLISHED BY USE OF THE NEXT ALPHABETICAL EXPANSION LETTER SUCH AS "B" THRU "Z".

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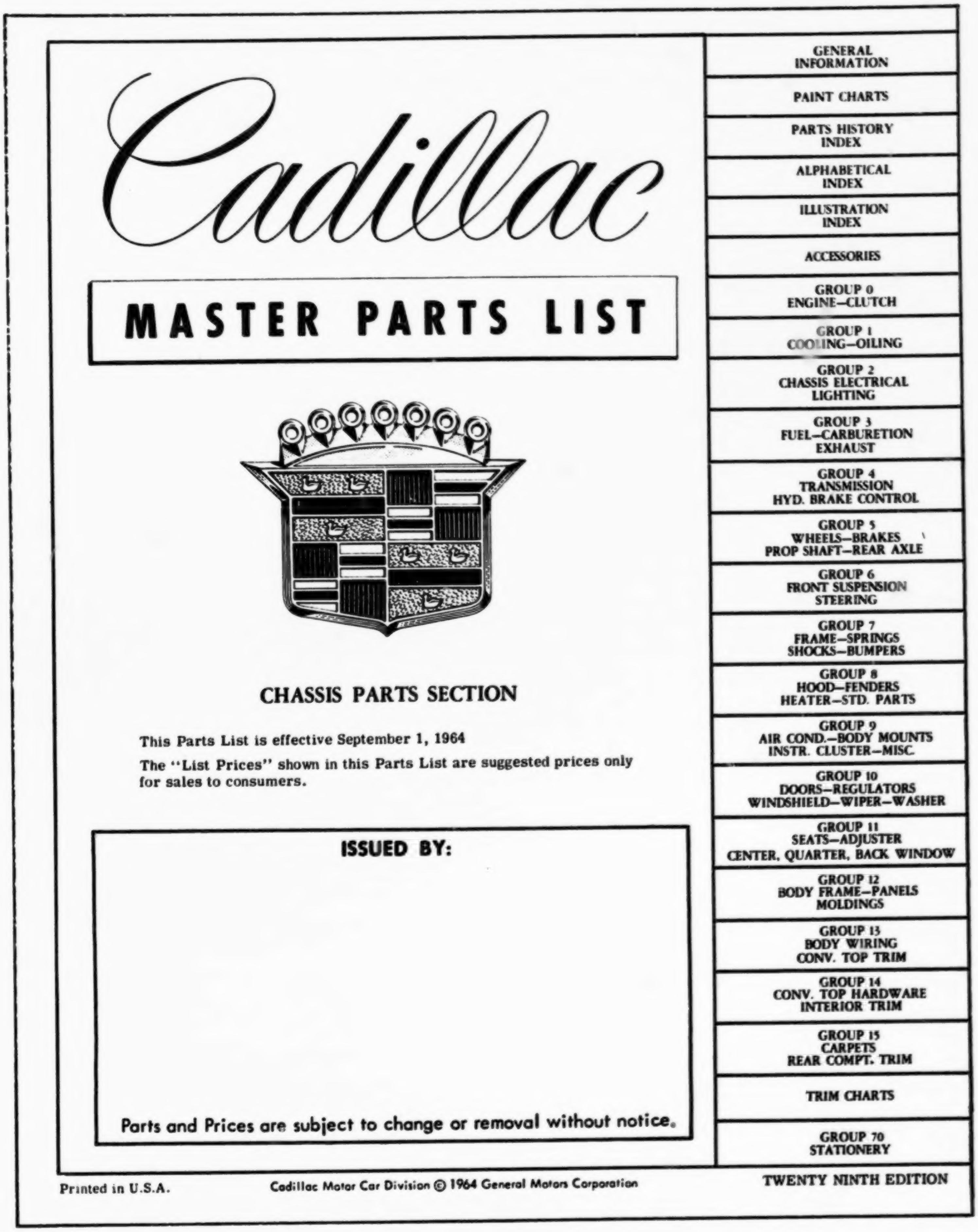
Fig. C—3. Ford basic parts numbering system (Page 3 of 3)



Cadillac

MASTER PARTS LIST

CHASSIS PARTS SECTION

This Parts List is effective September 1, 1964

The "List Prices" shown in this Parts List are suggested prices only for sales to consumers.

ISSUED BY:

Parts and Prices are subject to change or removal without notice.

- GENERAL INFORMATION
- PAINT CHARTS
- PARTS HISTORY INDEX
- ALPHABETICAL INDEX
- ILLUSTRATION INDEX
- ACCESSORIES
- GROUP 0 ENGINE—CLUTCH
- GROUP 1 COOLING—OILING
- GROUP 2 CHASSIS ELECTRICAL LIGHTING
- GROUP 3 FUEL—CARBURETION EXHAUST
- GROUP 4 TRANSMISSION HYD. BRAKE CONTROL
- GROUP 5 WHEELS—BRAKES PROP SHAFT—REAR AXLE
- GROUP 6 FRONT SUSPENSION STEERING
- GROUP 7 FRAME—SPRINGS SHOCKS—BUMPERS
- GROUP 8 HOOD—FENDERS HEATER—STD. PARTS
- GROUP 9 AIR COND.—BODY MOUNTS INSTR. CLUSTER—MISC.
- GROUP 10 DOORS—REGULATORS WINDSHIELD—WIPER—WASHER
- GROUP 11 SEATS—ADJUSTER CENTER, QUARTER, BACK WINDOW
- GROUP 12 BODY FRAME—PANELS MOLDINGS
- GROUP 13 BODY WIRING CONV. TOP TRIM
- GROUP 14 CONV. TOP HARDWARE INTERIOR TRIM
- GROUP 15 CARPETS REAR COMPT. TRIM
- TRIM CHARTS
- GROUP 70 STATIONERY

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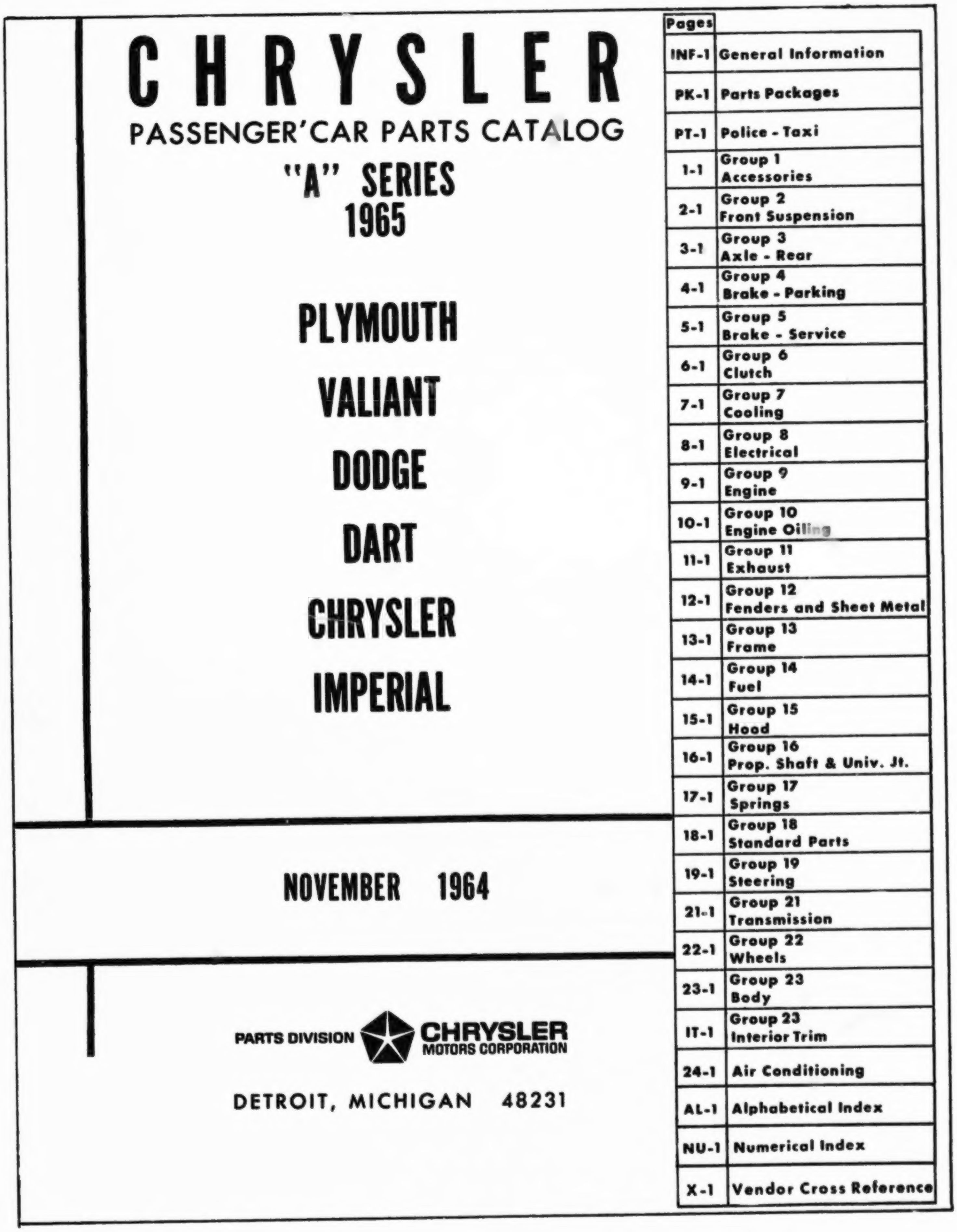
TWENTY NINTH EDITION

Fig. C—4. Automobile manufacturers' parts groups (Page 1 of 4)



CHRYSLER

PASSENGER'CAR PARTS CATALOG
"A" SERIES
1965

PLYMOUTH
VALIANT
DODGE
DART
CHRYSLER
IMPERIAL

NOVEMBER 1964

PARTS DIVISION CHRYSLER MOTORS CORPORATION

DETROIT, MICHIGAN 48231

Pages	
INF-1	General Information
PK-1	Parts Packages
PT-1	Police - Taxi
1-1	Group 1 Accessories
2-1	Group 2 Front Suspension
3-1	Group 3 Axle - Rear
4-1	Group 4 Brake - Parking
5-1	Group 5 Brake - Service
6-1	Group 6 Clutch
7-1	Group 7 Cooling
8-1	Group 8 Electrical
9-1	Group 9 Engine
10-1	Group 10 Engine Oiling
11-1	Group 11 Exhaust
12-1	Group 12 Fenders and Sheet Metal
13-1	Group 13 Frame
14-1	Group 14 Fuel
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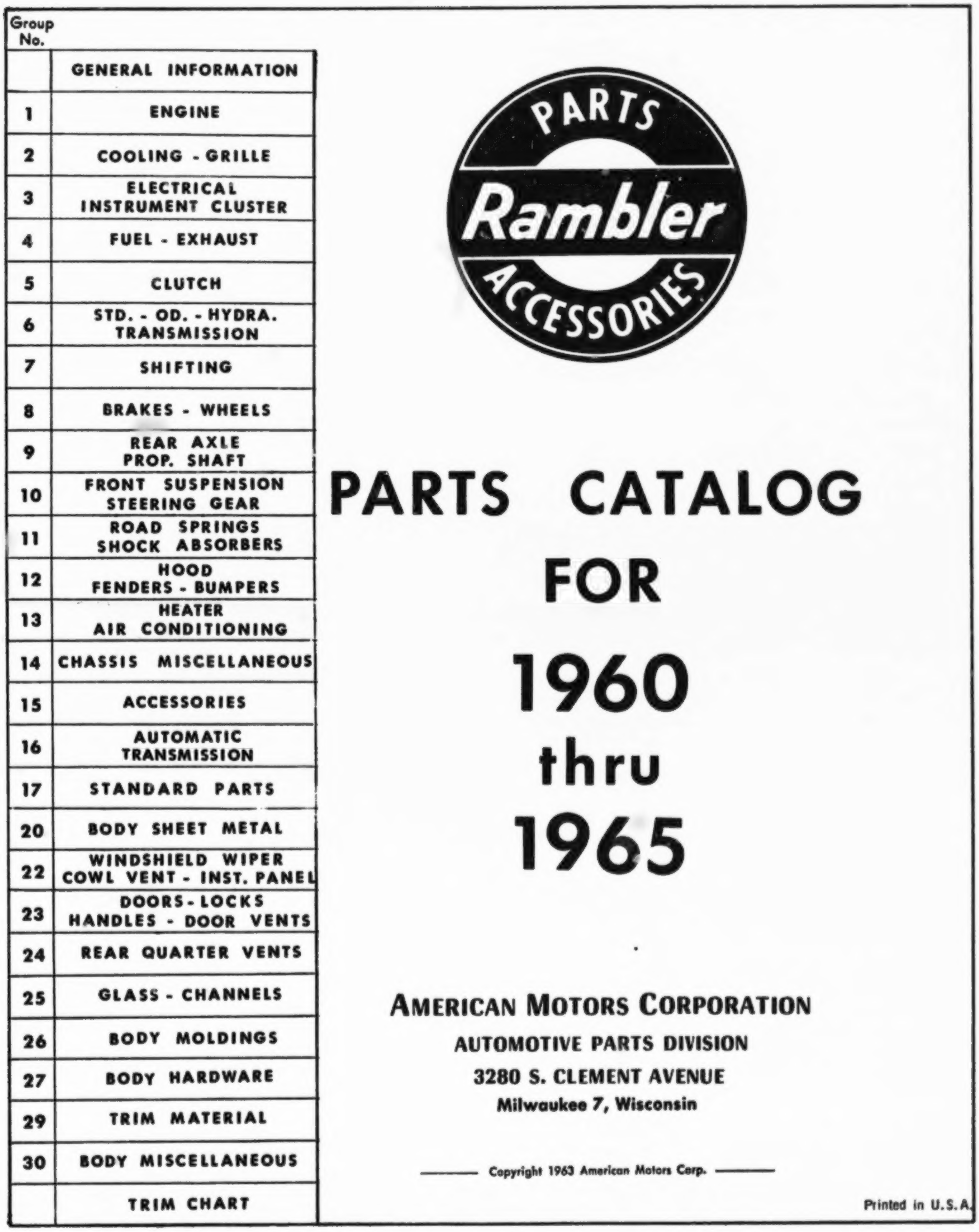
16-1	Group 16 Prop. Shaft & Univ. Jt.
17-1	Group 17 Springs
18-1	Group 18 Standard Parts
19-1	Group 19 Steering
21-1	Group 21 Transmission
22-1	Group 22 Wheels
23-1	Group 23 Body
IT-1	Group 23 Interior Trim
24-1	Air Conditioning
AL-1	Alphabetical Index
NU-1	Numerical Index
X-1	Vendor Cross Reference

Fig. C—4. Automobile manufacturers' parts groups (Page 2 of 4)



Group No.	
	GENERAL INFORMATION
1	ENGINE
2	COOLING - GRILLE
3	ELECTRICAL INSTRUMENT CLUSTER
4	FUEL - EXHAUST
5	CLUTCH
6	STD. - OD. - HYDRA. TRANSMISSION
7	SHIFTING
8	BRAKES - WHEELS
9	REAR AXLE PROP. SHAFT
10	FRONT SUSPENSION STEERING GEAR
11	ROAD SPRINGS SHOCK ABSORBERS
12	HOOD FENDERS - BUMPERS
13	HEATER AIR CONDITIONING
14	CHASSIS MISCELLANEOUS
15	ACCESSORIES
16	AUTOMATIC TRANSMISSION
17	STANDARD PARTS
20	BODY SHEET METAL
22	WINDSHIELD WIPER COWL VENT - INST. PANEL
23	DOORS - LOCKS HANDLES - DOOR VENTS
24	REAR QUARTER VENTS
25	GLASS - CHANNELS
26	BODY MOLDINGS
27	BODY HARDWARE
29	TRIM MATERIAL
30	BODY MISCELLANEOUS
	TRIM CHART

PARTS
Rambler
ACCESSORIES

PARTS CATALOG
FOR
1960
thru
1965

AMERICAN MOTORS CORPORATION
AUTOMOTIVE PARTS DIVISION
3280 S. CLEMENT AVENUE
Milwaukee 7, Wisconsin

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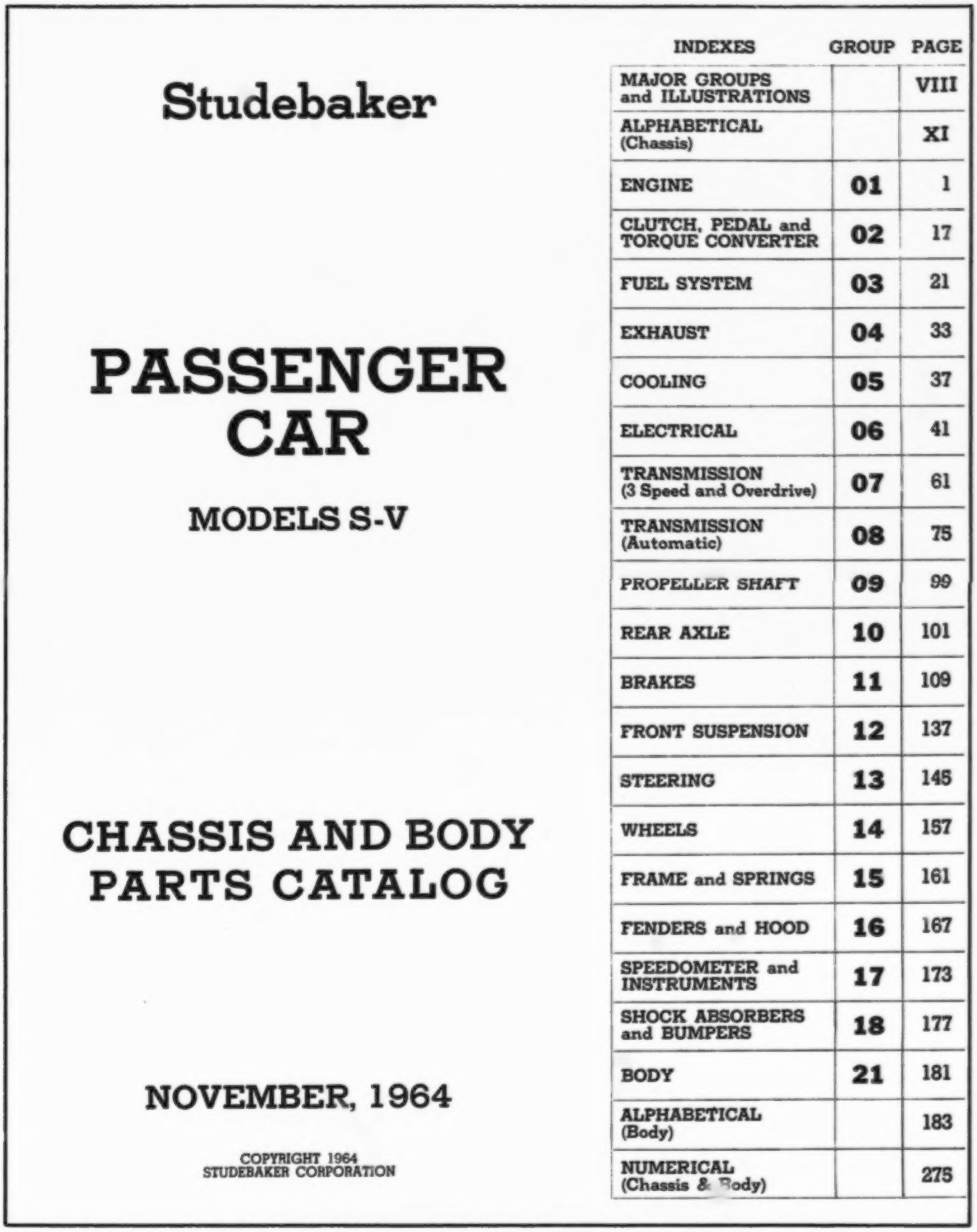
Fig. C—4. Automobile manufacturers' parts groups (Page 3 of 4)



Studebaker

PASSENGER
CAR

MODELS S-V

CHASSIS AND BODY
PARTS CATALOG

NOVEMBER, 1964

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STUDEBAKER CORPORATION

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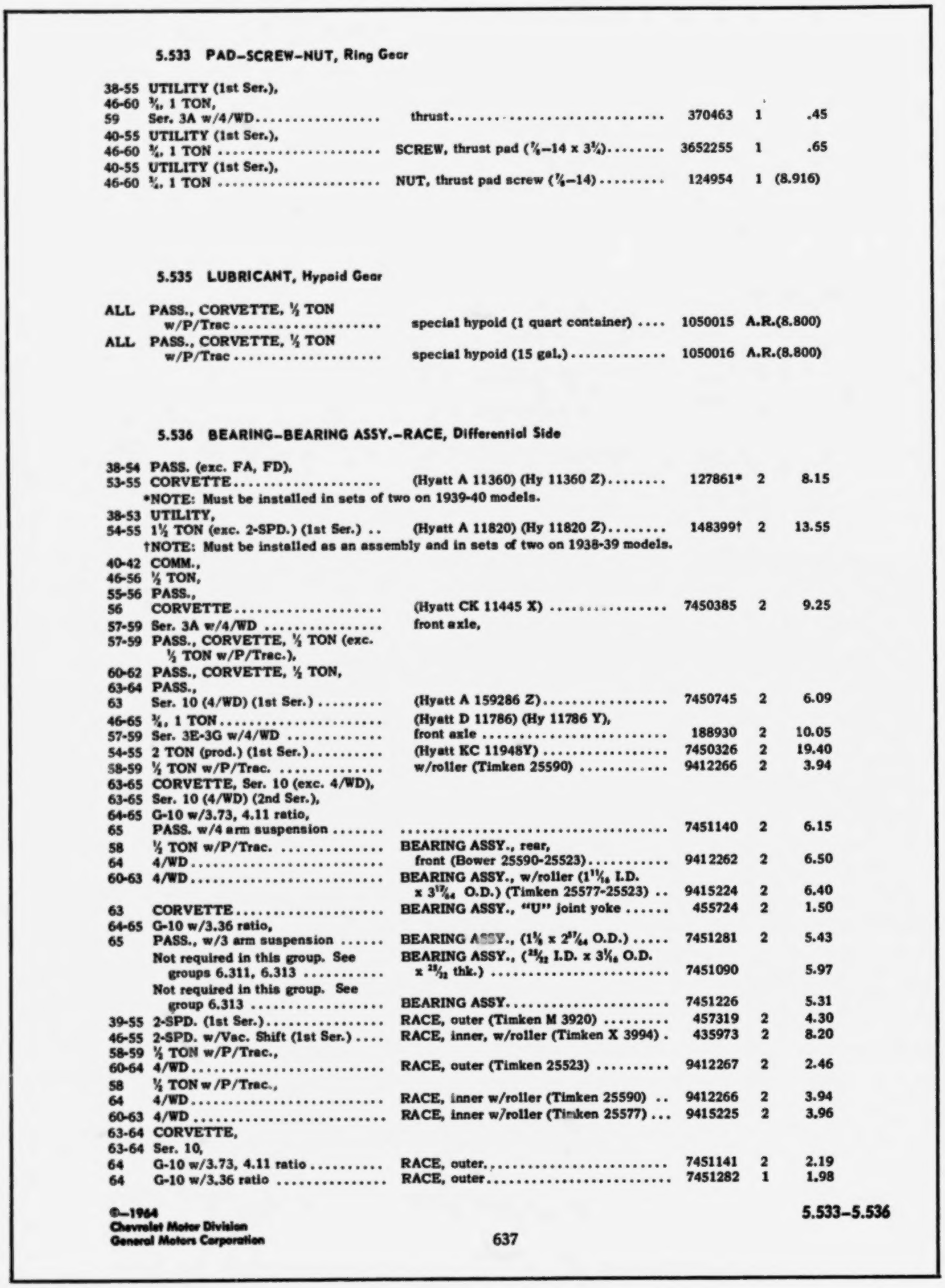
Fig. C—4. Automobile manufacturers' parts groups (Page 4 of 4)



5.533 PAD–SCREW–NUT, Ring Gear

38-55	UTILITY (1st Ser.),				
46-60	¾, 1 TON,				
59	Ser. 3A w/4/WD	thrust	370463	1	.45
40-55	UTILITY (1st Ser.),				
46-60	¾, 1 TON	SCREW, thrust pad (⅞–14 x 3¾)	3652255	1	.65
40-55	UTILITY (1st Ser.),				
46-60	¾, 1 TON	NUT, thrust pad screw (⅞–14)	124954	1	(8.916)

5.535 LUBRICANT, Hypoid Gear

ALL	PASS., CORVETTE, ½ TON w/P/Trac	special hypoid (1 quart container)	1050015	A.R.	(8.800)
ALL	PASS., CORVETTE, ½ TON w/P/Trac	special hypoid (15 gal.)	1050016	A.R.	(8.800)

5.536 BEARING–BEARING ASSY.–RACE, Differential Side

38-54	PASS. (exc. FA, FD),				
53-55	CORVETTE	(Hyatt A 11360) (Hy 11360 Z)	127861*	2	8.15
	*NOTE: Must be installed in sets of two on 1939-40 models.				
38-53	UTILITY,				
54-55	1½ TON (exc. 2-SPD.) (1st Ser.)	(Hyatt A 11820) (Hy 11820 Z)	148399†	2	13.55
	†NOTE: Must be installed as an assembly and in sets of two on 1938-39 models.				
40-42	COMM.,				
46-56	½ TON,				
55-56	PASS.,				
56	CORVETTE	(Hyatt CK 11445 X)	7450385	2	9.25
57-59	Ser. 3A w/4/WD	front axle,			
57-59	PASS., CORVETTE, ½ TON (exc. ½ TON w/P/Trac.),				
60-62	PASS., CORVETTE, ½ TON,				
63-64	PASS.,				
63	Ser. 10 (4/WD) (1st Ser.)	(Hyatt A 159286 Z)	7450745	2	6.09
46-65	¾, 1 TON	(Hyatt D 11786) (Hy 11786 Y),			
57-59	Ser. 3E-3G w/4/WD	front axle	188930	2	10.05
54-55	2 TON (prod.) (1st Ser.)	(Hyatt KC 11948Y)	7450326	2	19.40
58-59	½ TON w/P/Trac.	w/roller (Timken 25590)	9412266	2	3.94
63-65	CORVETTE, Ser. 10 (exc. 4/WD),				
63-65	Ser. 10 (4/WD) (2nd Ser.),				
64-65	G-10 w/3.73, 4.11 ratio,				
65	PASS. w/4 arm suspension		7451140	2	6.15
58	½ TON w/P/Trac.	BEARING ASSY., rear,			
64	4/WD	front (Bower 25590-25523)	9412262	2	6.50
60-63	4/WD	BEARING ASSY., w/roller ($1\frac{11}{16}$ I.D. x $3\frac{17}{64}$ O.D.) (Timken 25577-25523)	9415224	2	6.40
63	CORVETTE	BEARING ASSY., "U" joint yoke	455724	2	1.50
64-65	G-10 w/3.36 ratio,				
65	PASS., w/3 arm suspension	BEARING ASSY., (1⅜ x $2\frac{37}{64}$ O.D.)	7451281	2	5.43
	Not required in this group. See groups 6.311, 6.313	BEARING ASSY., ($\frac{25}{32}$ I.D. x 3⅛ O.D. x $\frac{25}{32}$ thk.)	7451090		5.97
	Not required in this group. See group 6.313	BEARING ASSY.	7451226		5.31
39-55	2-SPD. (1st Ser.)	RACE, outer (Timken M 3920)	457319	2	4.30
46-55	2-SPD. w/Vac. Shift (1st Ser.)	RACE, inner, w/roller (Timken X 3994)	435973	2	8.20
58-59	½ TON w/P/Trac.,				
60-64	4/WD	RACE, outer (Timken 25523)	9412267	2	2.46
58	½ TON w/P/Trac.,				
64	4/WD	RACE, inner w/roller (Timken 25590)	9412266	2	3.94
60-63	4/WD	RACE, inner w/roller (Timken 25577)	9415225	2	3.96
63-64	CORVETTE,				
63-64	Ser. 10,				
64	G-10 w/3.73, 4.11 ratio	RACE, outer	7451141	2	2.19
64	G-10 w/3.36 ratio	RACE, outer	7451282	1	1.98

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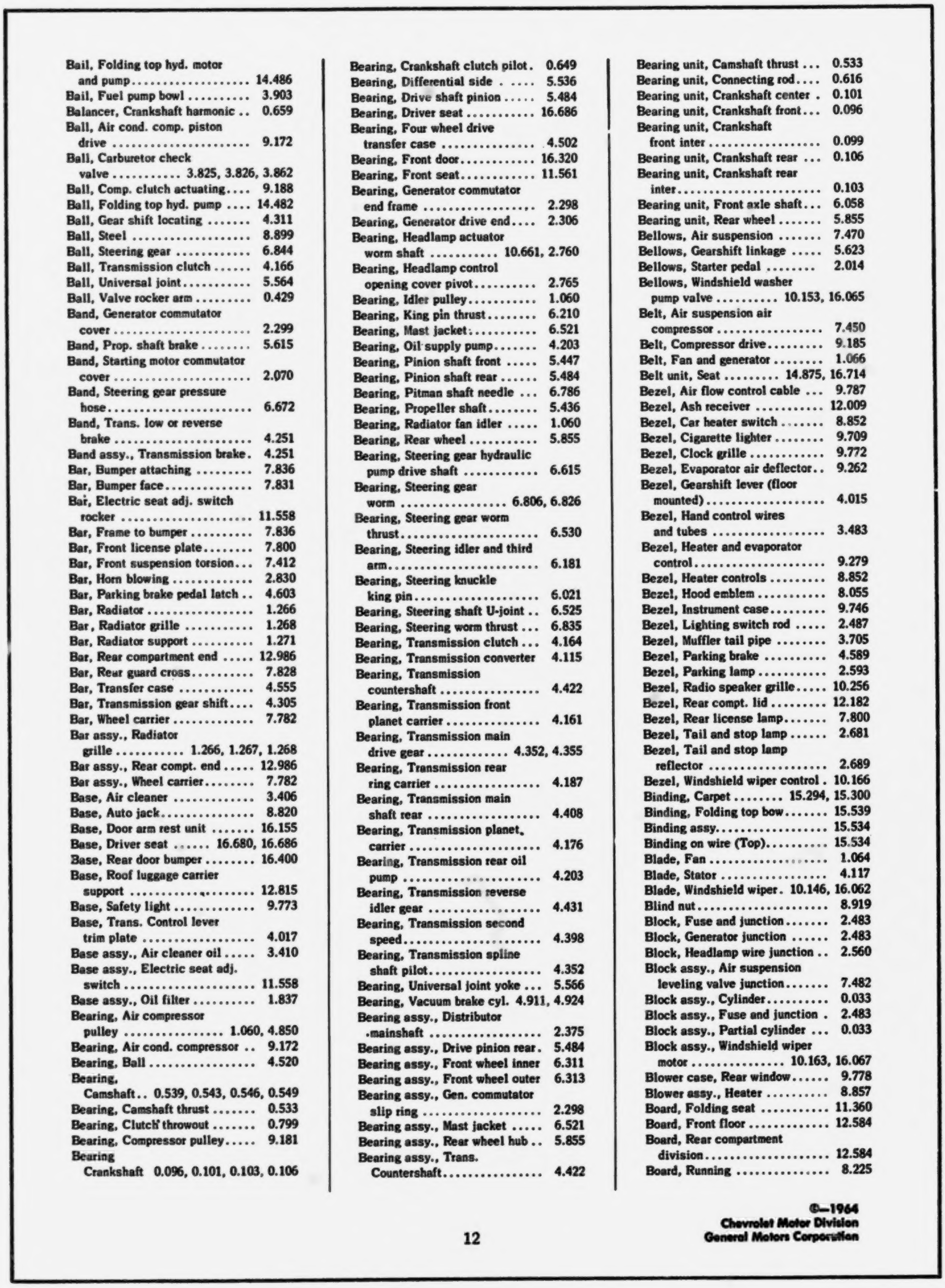
637

5.533–5.536

Fig. C—5. Specimen page of Chevrolet parts catalog, showing Group 5.536



Bail, Folding top hyd. motor and pump	14.486
Bail, Fuel pump bowl	3.903
Balancer, Crankshaft harmonic	0.659
Ball, Air cond. comp. piston drive	9.172
Ball, Carburetor check valve	3.825, 3.826, 3.862
Ball, Comp. clutch actuating	9.188
Ball, Folding top hyd. pump	14.482
Ball, Gear shift locating	4.311
Ball, Steel	8.899
Ball, Steering gear	6.844
Ball, Transmission clutch	4.166
Ball, Universal joint	5.564
Ball, Valve rocker arm	0.429
Band, Generator commutator cover	2.299
Band, Prop. shaft brake	5.615
Band, Starting motor commutator cover	2.070
Band, Steering gear pressure hose	6.672
Band, Trans. low or reverse brake	4.251
Band assy., Transmission brake	4.251
Bar, Bumper attaching	7.836
Bar, Bumper face	7.831
Bar, Electric seat adj. switch rocker	11.558
Bar, Frame to bumper	7.836
Bar, Front license plate	7.800
Bar, Front suspension torsion	7.412
Bar, Horn blowing	2.830
Bar, Parking brake pedal latch	4.603
Bar, Radiator	1.266
Bar, Radiator grille	1.268
Bar, Radiator support	1.271
Bar, Rear compartment end	12.986
Bar, Rear guard cross	7.828
Bar, Transfer case	4.555
Bar, Transmission gear shift	4.305
Bar, Wheel carrier	7.782
Bar assy., Radiator grille	1.266, 1.267, 1.268
Bar assy., Rear compt. end	12.986
Bar assy., Wheel carrier	7.782
Base, Air cleaner	3.406
Base, Auto jack	8.820
Base, Door arm rest unit	16.155
Base, Driver seat	16.680, 16.686
Base, Rear door bumper	16.400
Base, Roof luggage carrier support	12.815
Base, Safety light	9.773
Base, Trans. Control lever trim plate	4.017
Base assy., Air cleaner oil	3.410
Base assy., Electric seat adj. switch	11.558
Base assy., Oil filter	1.837
Bearing, Air compressor pulley	1.060, 4.850
Bearing, Air cond. compressor	9.172
Bearing, Ball	4.520
Bearing, Camshaft	0.539, 0.543, 0.546, 0.549
Bearing, Camshaft thrust	0.533
Bearing, Clutch throwout	0.799
Bearing, Compressor pulley	9.181
Bearing Crankshaft	0.096, 0.101, 0.103, 0.106
Bearing, Crankshaft clutch pilot	0.649
Bearing, Differential side	5.536
Bearing, Drive shaft pinion	5.484
Bearing, Driver seat	16.686
Bearing, Four wheel drive transfer case	4.502
Bearing, Front door	16.320
Bearing, Front seat	11.561
Bearing, Generator commutator end frame	2.298
Bearing, Generator drive end	2.306
Bearing, Headlamp actuator worm shaft	10.661, 2.760
Bearing, Headlamp control opening cover pivot	2.765
Bearing, Idler pulley	1.060
Bearing, King pin thrust	6.210
Bearing, Mast jacket	6.521
Bearing, Oil supply pump	4.203
Bearing, Pinion shaft front	5.447
Bearing, Pinion shaft rear	5.484
Bearing, Pitman shaft needle	6.786
Bearing, Propeller shaft	5.436
Bearing, Radiator fan idler	1.060
Bearing, Rear wheel	5.855
Bearing, Steering gear hydraulic pump drive shaft	6.615
Bearing, Steering gear worm	6.806, 6.826
Bearing, Steering gear worm thrust	6.530
Bearing, Steering idler and third arm	6.181
Bearing, Steering knuckle king pin	6.021
Bearing, Steering shaft U-joint	6.525
Bearing, Steering worm thrust	6.835
Bearing, Transmission clutch	4.164
Bearing, Transmission converter	4.115
Bearing, Transmission countershaft	4.422
Bearing, Transmission front planet carrier	4.161
Bearing, Transmission main drive gear	4.352, 4.355
Bearing, Transmission rear ring carrier	4.187
Bearing, Transmission main shaft rear	4.408
Bearing, Transmission planet, carrier	4.176
Bearing, Transmission rear oil pump	4.203
Bearing, Transmission reverse idler gear	4.431
Bearing, Transmission second speed	4.398
Bearing, Transmission spline shaft pilot	4.352
Bearing, Universal joint yoke	5.566
Bearing, Vacuum brake cyl.	4.911, 4.924
Bearing assy., Distributor mainshaft	2.375
Bearing assy., Drive pinion rear	5.484
Bearing assy., Front wheel inner	6.311
Bearing assy., Front wheel outer	6.313
Bearing assy., Gen. commutator slip ring	2.298
Bearing assy., Mast jacket	6.521
Bearing assy., Rear wheel hub	5.855
Bearing assy., Trans. Countershaft	4.422
Bearing unit, Camshaft thrust	0.533
Bearing unit, Connecting rod	0.616
Bearing unit, Crankshaft center	0.101
Bearing unit, Crankshaft front	0.096
Bearing unit, Crankshaft front inter	0.099
Bearing unit, Crankshaft rear	0.106
Bearing unit, Crankshaft rear inter	0.103
Bearing unit, Front axle shaft	6.058
Bearing unit, Rear wheel	5.855
Bellows, Air suspension	7.470
Bellows, Gearshift linkage	5.623
Bellows, Starter pedal	2.014
Bellows, Windshield washer pump valve	10.153, 16.065
Belt, Air suspension air compressor	7.450
Belt, Compressor drive	9.185
Belt, Fan and generator	1.066
Belt unit, Seat	14.875, 16.714
Bezel, Air flow control cable	9.787
Bezel, Ash receiver	12.009
Bezel, Car heater switch	8.852
Bezel, Cigarette lighter	9.709
Bezel, Clock grille	9.772
Bezel, Evaporator air deflector	9.262
Bezel, Gearshift lever (floor mounted)	4.015
Bezel, Hand control wires and tubes	3.483
Bezel, Heater and evaporator control	9.279
Bezel, Heater controls	8.852
Bezel, Hood emblem	8.055
Bezel, Instrument case	9.746
Bezel, Lighting switch rod	2.487
Bezel, Muffler tail pipe	3.705
Bezel, Parking brake	4.589
Bezel, Parking lamp	2.593
Bezel, Radio speaker grille	10.256
Bezel, Rear compt. lid	12.182
Bezel, Rear license lamp	7.800
Bezel, Tail and stop lamp	2.681
Bezel, Tail and stop lamp reflector	2.689
Bezel, Windshield wiper control	10.166
Binding, Carpet	15.294, 15.300
Binding, Folding top bow	15.539
Binding assy.	15.534
Binding on wire (Top)	15.534
Blade, Fan	1.064
Blade, Stator	4.117
Blade, Windshield wiper	10.146, 16.062
Blind nut	8.919
Block, Fuse and junction	2.483
Block, Generator junction	2.483
Block, Headlamp wire junction	2.560
Block assy., Air suspension leveling valve junction	7.482
Block assy., Cylinder	0.033
Block assy., Fuse and junction	2.483
Block assy., Partial cylinder	0.033
Block assy., Windshield wiper motor	10.163, 16.067
Blower case, Rear window	9.778
Blower assy., Heater	8.857
Board, Folding seat	11.360
Board, Front floor	12.584
Board, Rear compartment division	12.584
Board, Running	8.225

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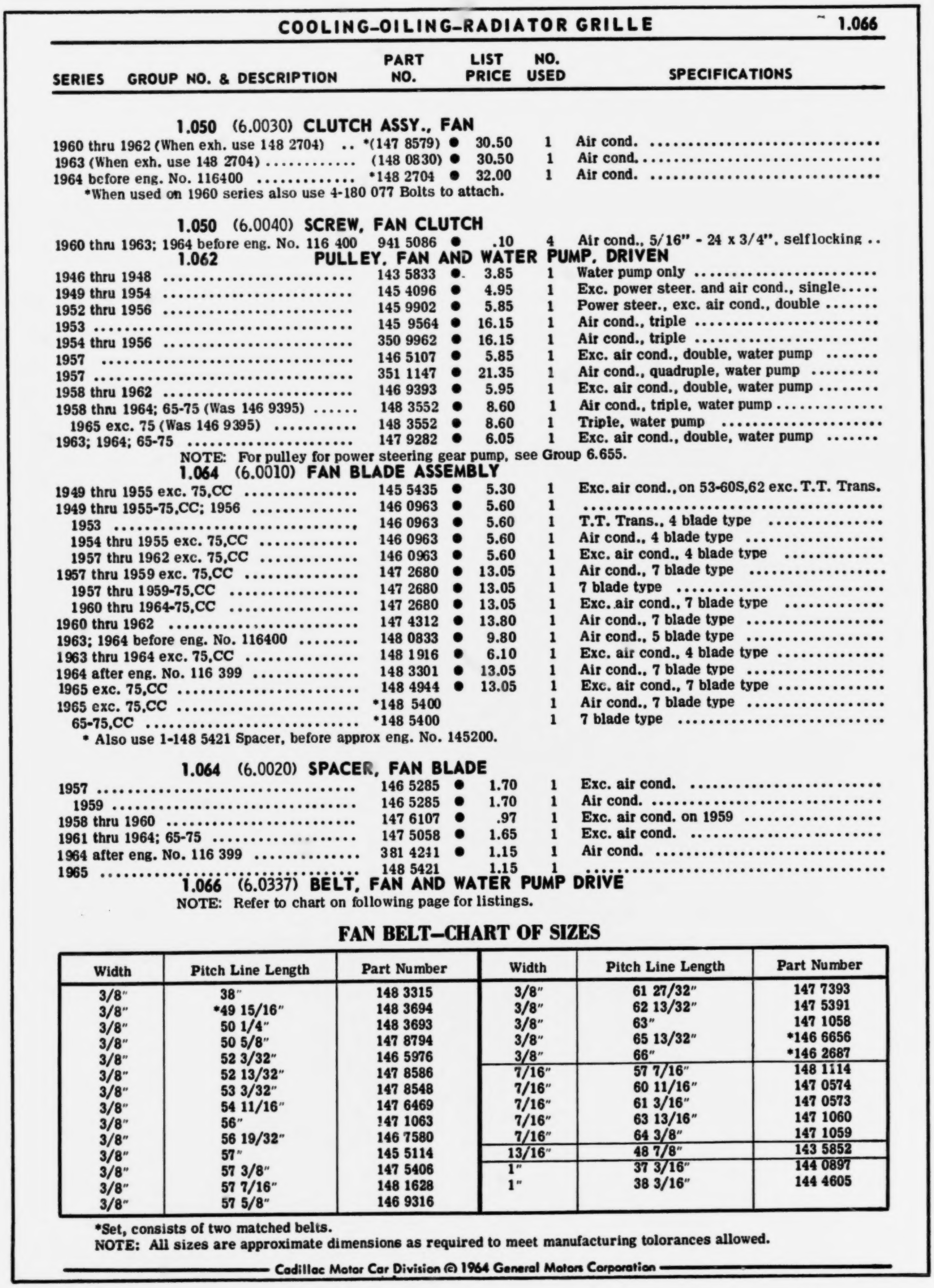
Fig. C—6. Specimen page of Chevrolet parts index



COOLING-OILING-RADIATOR GRILLE 1.066

1.050 (6.0030) CLUTCH ASSY., FAN

SERIES GROUP NO. & DESCRIPTION	PART NO.		LIST PRICE	NO. USED	SPECIFICATIONS
1960 thru 1962 (When exh. use 148 2704)	*(147 8579)	●	30.50	1	Air cond.
1963 (When exh. use 148 2704)	(148 0830)	●	30.50	1	Air cond.
1964 before eng. No. 116400	*148 2704	●	32.00	1	Air cond.

*When used on 1960 series also use 4-180 077 Bolts to attach.

1.050 (6.0040) SCREW, FAN CLUTCH

SERIES GROUP NO. & DESCRIPTION	PART NO.		LIST PRICE	NO. USED	SPECIFICATIONS
1960 thru 1963; 1964 before eng. No. 116 400	941 5086	●	.10	4	Air cond., 5/16" - 24 x 3/4", selflocking

1.062 PULLEY, FAN AND WATER PUMP, DRIVEN

SERIES GROUP NO. & DESCRIPTION	PART NO.		LIST PRICE	NO. USED	SPECIFICATIONS
1946 thru 1948	143 5833	●	3.85	1	Water pump only
1949 thru 1954	145 4096	●	4.95	1	Exc. power steer. and air cond., single
1952 thru 1956	145 9902	●	5.85	1	Power steer., exc. air cond., double
1953	145 9564	●	16.15	1	Air cond., triple
1954 thru 1956	350 9962	●	16.15	1	Air cond., triple
1957	146 5107	●	5.85	1	Exc. air cond., double, water pump
1957	351 1147	●	21.35	1	Air cond., quadruple, water pump
1958 thru 1962	146 9393	●	5.95	1	Exc. air cond., double, water pump
1958 thru 1964; 65-75 (Was 146 9395)	148 3552	●	8.60	1	Air cond., triple, water pump
1965 exc. 75 (Was 146 9395)	148 3552	●	8.60	1	Triple, water pump
1963; 1964; 65-75	147 9282	●	6.05	1	Exc. air cond., double, water pump

NOTE: For pulley for power steering gear pump, see Group 6.655.

1.064 (6.0010) FAN BLADE ASSEMBLY

SERIES GROUP NO. & DESCRIPTION	PART NO.		LIST PRICE	NO. USED	SPECIFICATIONS
1949 thru 1955 exc. 75,CC	145 5435	●	5.30	1	Exc. air cond., on 53-60S,62 exc. T.T. Trans.
1949 thru 1955-75,CC; 1956	146 0963	●	5.60	1	
1953	146 0963	●	5.60	1	T.T. Trans., 4 blade type
1954 thru 1955 exc. 75,CC	146 0963	●	5.60	1	Air cond., 4 blade type
1957 thru 1962 exc. 75,CC	146 0963	●	5.60	1	Exc. air cond., 4 blade type
1957 thru 1959 exc. 75,CC	147 2680	●	13.05	1	Air cond., 7 blade type
1957 thru 1959-75,CC	147 2680	●	13.05	1	7 blade type
1960 thru 1964-75,CC	147 2680	●	13.05	1	Exc. air cond., 7 blade type
1960 thru 1962	147 4312	●	13.80	1	Air cond., 7 blade type
1963; 1964 before eng. No. 116400	148 0833	●	9.80	1	Air cond., 5 blade type
1963 thru 1964 exc. 75,CC	148 1916	●	6.10	1	Exc. air cond., 4 blade type
1964 after eng. No. 116 399	148 3301	●	13.05	1	Air cond., 7 blade type
1965 exc. 75,CC	148 4944	●	13.05	1	Exc. air cond., 7 blade type
1965 exc. 75,CC	*148 5400			1	Air cond., 7 blade type
65-75,CC	*148 5400			1	7 blade type

* Also use 1-148 5421 Spacer, before approx eng. No. 145200.

1.064 (6.0020) SPACER, FAN BLADE

SERIES GROUP NO. & DESCRIPTION	PART NO.		LIST PRICE	NO. USED	SPECIFICATIONS
1957	146 5285	●	1.70	1	Exc. air cond.
1959	146 5285	●	1.70	1	Air cond.
1958 thru 1960	147 6107	●	.97	1	Exc. air cond. on 1959
1961 thru 1964; 65-75	147 5058	●	1.65	1	Exc. air cond.
1964 after eng. No. 116 399	381 4241	●	1.15	1	Air cond.
1965	148 5421		1.15	1	

1.066 (6.0337) BELT, FAN AND WATER PUMP DRIVE

NOTE: Refer to chart on following page for listings.

FAN BELT–CHART OF SIZES

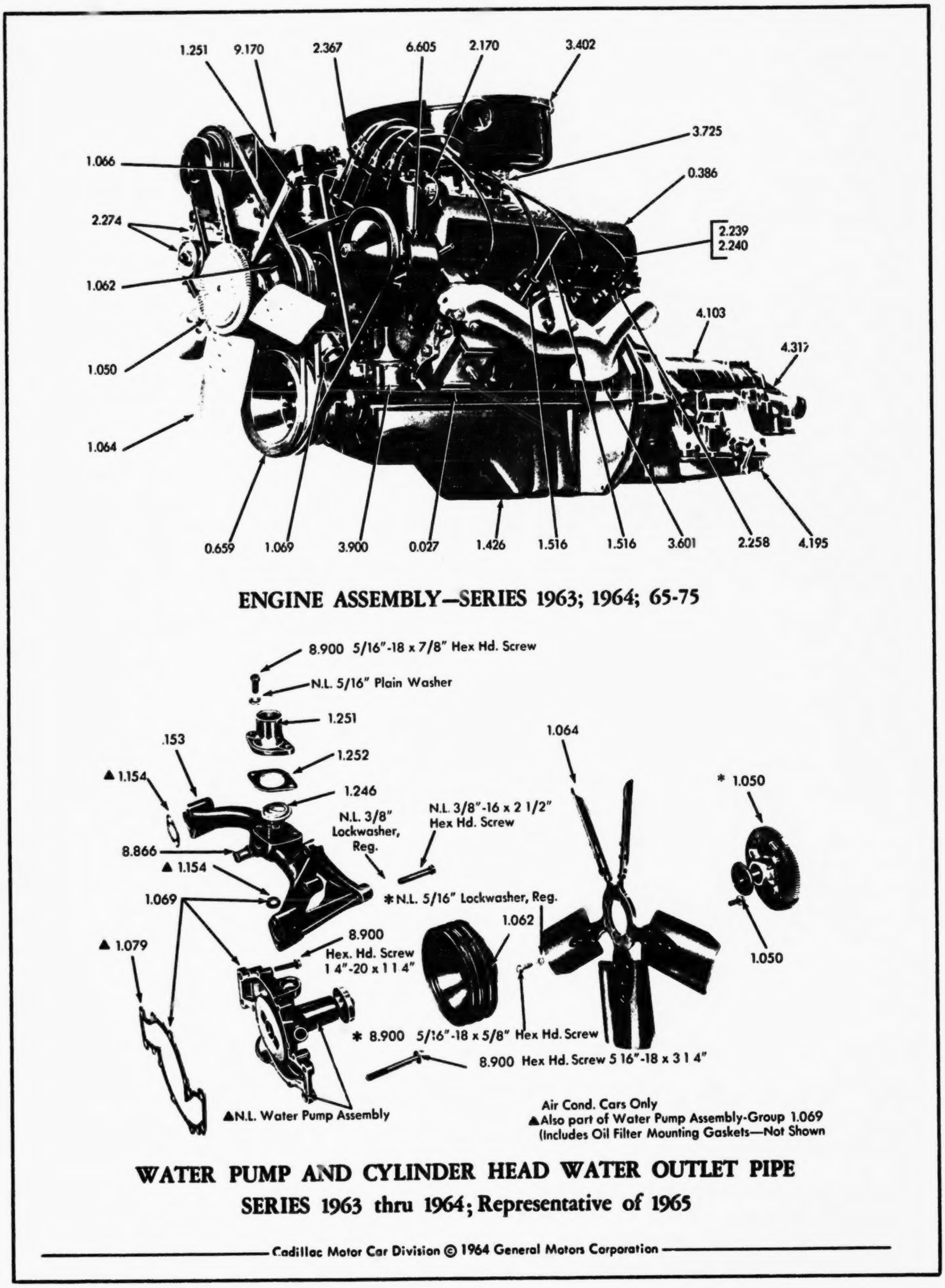
Width	Pitch Line Length	Part Number	Width	Pitch Line Length	Part Number
3/8"	38"	148 3315	3/8"	61 27/32"	147 7393
3/8"	*49 15/16"	148 3694	3/8"	62 13/32"	147 5391
3/8"	50 1/4"	148 3693	3/8"	63"	147 1058
3/8"	50 5/8"	147 8794	3/8"	65 13/32"	*146 6656
3/8"	52 3/32"	146 5976	3/8"	66"	*146 2687
3/8"	52 13/32"	147 8586	7/16"	57 7/16"	148 1114
3/8"	53 3/32"	147 8548	7/16"	60 11/16"	147 0574
3/8"	54 11/16"	147 6469	7/16"	61 3/16"	147 0573
3/8"	56"	147 1063	7/16"	63 13/16"	147 1060
3/8"	56 19/32"	146 7580	7/16"	64 3/8"	147 1059
3/8"	57"	145 5114	13/16"	48 7/8"	143 5852
3/8"	57 3/8"	147 5406	1"	37 3/16"	144 0897
3/8"	57 7/16"	148 1628	1"	38 3/16"	144 4605
3/8"	57 5/8"	146 9316			

*Set, consists of two matched belts.

NOTE: All sizes are approximate dimensions as required to meet manufacturing tolorances allowed.

Cadillac Motor Car Division © 1964 General Motors Corporation

Fig. C—7. Specimen page of Cadillac parts catalog, showing fan blade assembly


1.251
9.170
2.367
6.605
2.170
3.402
3.725
0.386
2.239
2.240
1.066
2.274
1.062
1.050
1.064
4.103
4.317
0.659
1.069
3.900
0.027
1.426
1.516
1.516
3.601
2.258
4.195

ENGINE ASSEMBLY—SERIES 1963; 1964; 65-75

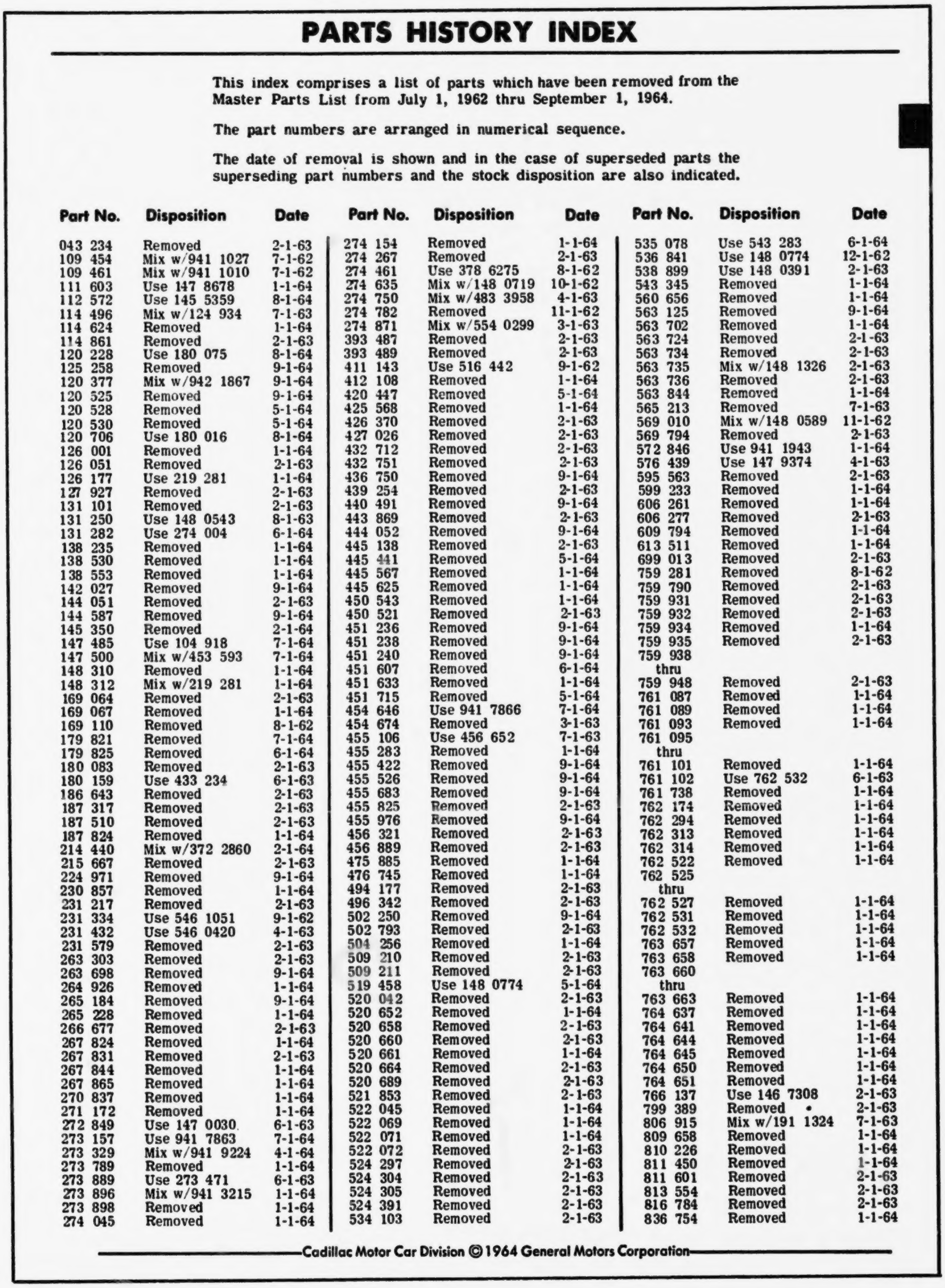
8.900 5/16"-18 x 7/8" Hex Hd. Screw
N.L. 5/16" Plain Washer
1.251
.153
1.252
▲ 1.154
1.246
N.L. 3/8" Lockwasher, Reg.
N.L. 3/8"-16 x 2 1/2" Hex Hd. Screw
8.866
▲ 1.154
✱N.L. 5/16" Lockwasher, Reg.
1.069
1.062
▲ 1.079
8.900 Hex. Hd. Screw 1 4"-20 x 1 1 4"
1.064
* 1.050
1.050
✱ 8.900 5/16"-18 x 5/8" Hex Hd. Screw
8.900 Hex Hd. Screw 5 16"-18 x 3 1 4"
▲N.L. Water Pump Assembly

Air Cond. Cars Only
▲Also part of Water Pump Assembly-Group 1.069
(Includes Oil Filter Mounting Gaskets—Not Shown

WATER PUMP AND CYLINDER HEAD WATER OUTLET PIPE
SERIES 1963 thru 1964; Representative of 1965

Cadillac Motor Car Division © 1964 General Motors Corporation

Fig. C—8. Specimen page of Cadillac parts catalog, illustrating engine assembly



PARTS HISTORY INDEX

This index comprises a list of parts which have been removed from the Master Parts List from July 1, 1962 thru September 1, 1964.

The part numbers are arranged in numerical sequence.

The date of removal is shown and in the case of superseded parts the superseding part numbers and the stock disposition are also indicated.

Part No.	Disposition	Date
043 234	Removed	2-1-63
109 454	Mix w/941 1027	7-1-62
109 461	Mix w/941 1010	7-1-62
111 603	Use 147 8678	1-1-64
112 572	Use 145 5359	8-1-64
114 496	Mix w/124 934	7-1-63
114 624	Removed	1-1-64
114 861	Removed	2-1-63
120 228	Use 180 075	8-1-64
125 258	Removed	9-1-64
120 377	Mix w/942 1867	9-1-64
120 525	Removed	9-1-64
120 528	Removed	5-1-64
120 530	Removed	5-1-64
120 706	Use 180 016	8-1-64
126 001	Removed	1-1-64
126 051	Removed	2-1-63
126 177	Use 219 281	1-1-64
127 927	Removed	2-1-63
131 101	Removed	2-1-63
131 250	Use 148 0543	8-1-63
131 282	Use 274 004	6-1-64
138 235	Removed	1-1-64
138 530	Removed	1-1-64
138 553	Removed	1-1-64
142 027	Removed	9-1-64
144 051	Removed	2-1-63
144 587	Removed	9-1-64
145 350	Removed	2-1-64
147 485	Use 104 918	7-1-64
147 500	Mix w/453 593	7-1-64
148 310	Removed	1-1-64
148 312	Mix w/219 281	1-1-64
169 064	Removed	2-1-63
169 067	Removed	1-1-64
169 110	Removed	8-1-62
179 821	Removed	7-1-64
179 825	Removed	6-1-64
180 083	Removed	2-1-63
180 159	Use 433 234	6-1-63
186 643	Removed	2-1-63
187 317	Removed	2-1-63
187 510	Removed	2-1-63
187 824	Removed	1-1-64
214 440	Mix w/372 2860	2-1-64
215 667	Removed	2-1-63
224 971	Removed	9-1-64
230 857	Removed	1-1-64
231 217	Removed	2-1-63
231 334	Use 546 1051	9-1-62
231 432	Use 546 0420	4-1-63
231 579	Removed	2-1-63
263 303	Removed	2-1-63
263 698	Removed	9-1-64
264 926	Removed	1-1-64
265 184	Removed	9-1-64
265 228	Removed	1-1-64
266 677	Removed	2-1-63
267 824	Removed	1-1-64
267 831	Removed	2-1-63
267 844	Removed	1-1-64
267 865	Removed	1-1-64
270 837	Removed	1-1-64
271 172	Removed	1-1-64
272 849	Use 147 0030	6-1-63
273 157	Use 941 7863	7-1-64
273 329	Mix w/941 9224	4-1-64
273 789	Removed	1-1-64
273 889	Use 273 471	6-1-63
273 896	Mix w/941 3215	1-1-64
273 898	Removed	1-1-64
274 045	Removed	1-1-64
274 154	Removed	1-1-64
274 267	Removed	2-1-63
274 461	Use 378 6275	8-1-62
274 635	Mix w/148 0719	10-1-62
274 750	Mix w/483 3958	4-1-63
274 782	Removed	11-1-62
274 871	Mix w/554 0299	3-1-63
393 487	Removed	2-1-63
393 489	Removed	2-1-63
411 143	Use 516 442	9-1-62
412 108	Removed	1-1-64
420 447	Removed	5-1-64
425 568	Removed	1-1-64
426 370	Removed	2-1-63
427 026	Removed	2-1-63
432 712	Removed	2-1-63
432 751	Removed	2-1-63
436 750	Removed	9-1-64
439 254	Removed	2-1-63
440 491	Removed	9-1-64
443 869	Removed	2-1-63
444 052	Removed	9-1-64
445 138	Removed	2-1-63
445 441	Removed	5-1-64
445 567	Removed	1-1-64
445 625	Removed	1-1-64
450 543	Removed	1-1-64
450 521	Removed	2-1-63
451 236	Removed	9-1-64
451 238	Removed	9-1-64
451 240	Removed	9-1-64
451 607	Removed	6-1-64
451 633	Removed	1-1-64
451 715	Removed	5-1-64
454 646	Use 941 7866	7-1-64
454 674	Removed	3-1-63
455 106	Use 456 652	7-1-63
455 283	Removed	1-1-64
455 422	Removed	9-1-64
455 526	Removed	9-1-64
455 683	Removed	9-1-64
455 825	Removed	2-1-63
455 976	Removed	9-1-64
456 321	Removed	2-1-63
456 889	Removed	2-1-63
475 885	Removed	1-1-64
476 745	Removed	1-1-64
494 177	Removed	2-1-63
496 342	Removed	2-1-63
502 250	Removed	9-1-64
502 793	Removed	2-1-63
504 256	Removed	1-1-64
509 210	Removed	2-1-63
509 211	Removed	2-1-63
519 458	Use 148 0774	5-1-64
520 042	Removed	2-1-63
520 652	Removed	1-1-64
520 658	Removed	2-1-63
520 660	Removed	2-1-63
520 661	Removed	1-1-64
520 664	Removed	2-1-63
520 689	Removed	2-1-63
521 853	Removed	2-1-63
522 045	Removed	1-1-64
522 069	Removed	1-1-64
522 071	Removed	1-1-64
522 072	Removed	2-1-63
524 297	Removed	2-1-63
524 304	Removed	2-1-63
524 305	Removed	2-1-63
524 391	Removed	2-1-63
534 103	Removed	2-1-63
535 078	Use 543 283	6-1-64
536 841	Use 148 0774	12-1-62
538 899	Use 148 0391	2-1-63
543 345	Removed	1-1-64
560 656	Removed	1-1-64
563 125	Removed	9-1-64
563 702	Removed	1-1-64
563 724	Removed	2-1-63
563 734	Removed	2-1-63
563 735	Mix w/148 1326	2-1-63
563 736	Removed	2-1-63
563 844	Removed	1-1-64
565 213	Removed	7-1-63
569 010	Mix w/148 0589	11-1-62
569 794	Removed	2-1-63
572 846	Use 941 1943	1-1-64
576 439	Use 147 9374	4-1-63
595 563	Removed	2-1-63
599 233	Removed	1-1-64
606 261	Removed	1-1-64
606 277	Removed	2-1-63
609 794	Removed	1-1-64
613 511	Removed	1-1-64
699 013	Removed	2-1-63
759 281	Removed	8-1-62
759 790	Removed	2-1-63
759 931	Removed	2-1-63
759 932	Removed	2-1-63
759 934	Removed	1-1-64
759 935	Removed	2-1-63
759 938 thru 759 948	Removed	2-1-63
761 087	Removed	1-1-64
761 089	Removed	1-1-64
761 093	Removed	1-1-64
761 095 thru 761 101	Removed	1-1-64
761 102	Use 762 532	6-1-63
761 738	Removed	1-1-64
762 174	Removed	1-1-64
762 294	Removed	1-1-64
762 313	Removed	1-1-64
762 314	Removed	1-1-64
762 522	Removed	1-1-64
762 525 thru 762 527	Removed	1-1-64
762 531	Removed	1-1-64
762 532	Removed	1-1-64
763 657	Removed	1-1-64
763 658	Removed	1-1-64
763 660 thru 763 663	Removed	1-1-64
764 637	Removed	1-1-64
764 641	Removed	1-1-64
764 644	Removed	1-1-64
764 645	Removed	1-1-64
764 650	Removed	1-1-64
764 651	Removed	1-1-64
766 137	Use 146 7308	2-1-63
799 389	Removed	2-1-63
806 915	Mix w/191 1324	7-1-63
809 658	Removed	1-1-64
810 226	Removed	1-1-64
811 450	Removed	1-1-64
811 601	Removed	2-1-63
813 554	Removed	2-1-63
816 784	Removed	2-1-63
836 754	Removed	1-1-64

Cadillac Motor Car Division © 1964 General Motors Corporation

Fig. C—9. Specimen page of Cadillac parts history index

UNIT C--CATALOGING SYSTEMS

TOPIC 1--FACTORY PARTS SYSTEMS- Study Guide and Test

Study Guide

After you have studied the material in the workbook and the assigned material, complete the exercises as follows: (1) select the word that belongs in each numbered space in an exercise; and (2) write the word at the right in the space that has the same number as the space in the exercise.

1. Parts ___ 1 ___ are the indispensable operating tools of the parts department.	1. ________
2. The major auto manufacturers' catalogs all have the same basic ___ 2 ___.	2. ________
3. Each new part produced must be arbitrarily assigned a(n) ___ 3 ___ ___ 4 ___ to give it a(n) ___ 5 ___.	3. ________ 4. ________ 5. ________
4. General Motors uses a ___ 6 ___ system in the assignment of part numbers.	6. ________
5. A part number which does not ___ 7 ___ the part is termed "nonsignificant."	7. ________
6. Ford Motor Company part numbers are formed by expanding the basic ___ 8 ___ numbers.	8. ________
7. Ford part numbers are ___ 9 ___ in that they identify the nature, location, and application of the part to which they are assigned.	9. ________
8. All Ford crankshafts have the basic number ___ 10 ___.	10. ________
9. In the General Motors system, the group numerals preceding the decimal point identify ___ 11 ___ assemblies or ___ 12 ___ of the automobile.	11. ________ 12. ________
10. Numerals following the decimal point in the G.M. system relate to ___ 13 ___ or ___ 14 ___ parts.	13. ________ 14. ________
11. It is a good idea for the parts apprentice to memorize the ___ 15 ___ divisions.	15. ________

12. Group numbers seldom __16__, whereas part numbers may do so frequently. 16. __________

13. The most common method of locating parts is through the name as listed in the __17__ index. 17. __________

14. The second most common method of locating parts is by referring to the __18__. 18. __________

15. One of the most informative sections of parts catalogs is the __19__ __20__ index. 19. __________ 20. __________

Test

Read each statement and decide whether it is true or false. Circle T if the statement is true; circle F if the statement is false.

1. Major groups of parts are given the same numbers by all auto manufacturers. 1. T F

2. Parts interchangeable between a Cadillac and a Corvair would be numbered alike. 2. T F

3. The Ford parts number system is being expanded throughout from five to six numbers. 3. T F

4. General Motors uses block assignments of parts numbers to their subsidiaries. 4. T F

5. Without a parts catalog, an agency parts department could not operate efficiently. 5. T F

6. All major auto manufacturers' parts catalogs are similarly constructed. 6. T F

7. Similar parts may be assigned identical parts numbers. 7. T F

8. The first number group 745 in General Motors part number 7450745 indicates the item is a bearing. 8. T F

9. Each group number assignment covers a major portion of the vehicle. 9. T F

10. Helpful supplementary tables, data, and information are found in most parts catalogs. 10. T F

UNIT C--CATALOGING SYSTEMS

TOPIC 2--JOBBER AND INDEPENDENT SYSTEMS

This topic, "Jobber and Independent Systems," is planned to help you find answers to the following questions:

- Do jobbers and independent parts stores use auto factory indexing systems?
- How does a jobber correlate the parts produced by independent manufacturers?
- What does the Weatherly Index system comprise?
- How is the Weatherly system used?

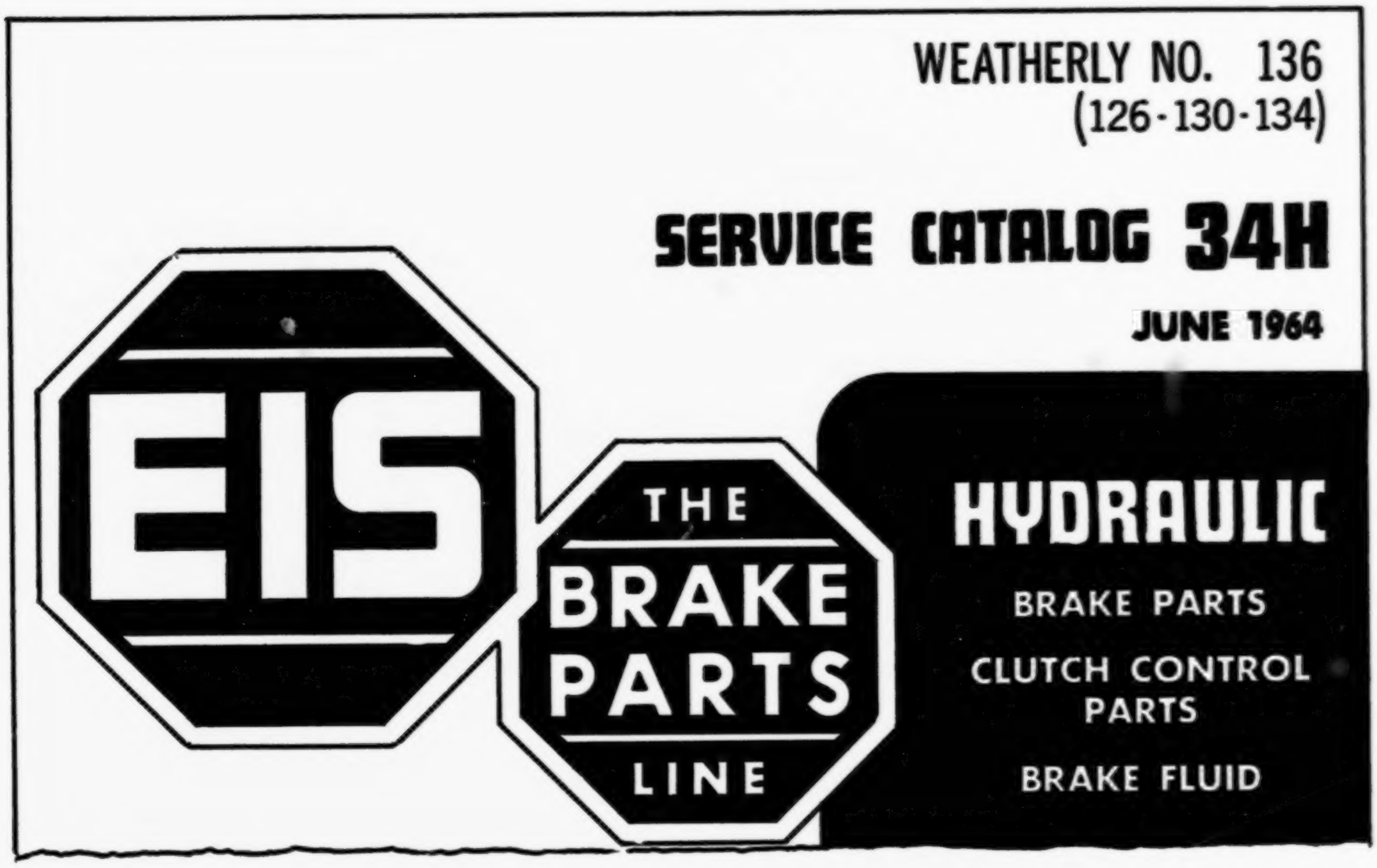
In this topic one representative cataloging system used by jobber-independents, the Weatherly Index, will be covered. Although other systems are used, only a few are in widespread use, and all the systems are similar. An understanding of the Weatherly Index System will, in essence, enable the apprentice to understand them all.

The Weatherly Index System was copyrighted in 1932. It provides a complete alphabetical and numerical index designed to accommodate automotive, aeronautical, and marine supply catalogs with equal ease. The system is versatile enough that the automotive indexing of parts, supplies, and equipment may be used alone, without any loss in the efficiency of the system. It is widely used to locate the manufacturers' catalog insert pages in the wholesaler's catalog. A majority of auto parts manufacturers now key their catalogs to the Weatherly Index System. The Weatherly Index number is printed in the upper right-hand corner of the cover or index sheet of these manufacturers' catalogs, making it a simple matter to insert the catalog into its proper place in the system. (See Fig. C-10.)

In a sense, use of the Weatherly Index is the reverse of ordinary procedure. Catalogs are usually compiled first and then provided with an index of their contents. With the Weatherly Index System, the index is provided first, and the catalogs and information sheets fitted into the indexing system.

Not all manufacturers print their catalogs with the Weatherly Index number. When such catalogs or information sheets are received, the alphabetical listing of the Weatherly Index is consulted for the correct group, and the number stamped in the upper right corner of each unnumbered sheet or catalog [illegible] When the material has been given a proper group number, it can be located readily in the counter catalog.

Frequently, manufacturers' catalogs containing several groups of items will show several Weatherly Index numbers. Four Weatherly numbers are shown



WEATHERLY NO. 136
(126-130-134)

SERVICE CATALOG 34H

JUNE 1964

EIS

THE
BRAKE
PARTS
LINE

HYDRAULIC

BRAKE PARTS

CLUTCH CONTROL
PARTS

BRAKE FLUID

Fig. C—10. Manufacturer's catalog with Weatherly index number

in Fig. C-10; 136 is the principal number, but the catalog also contains items listed in groups 126, 130, and 134. Such groupings are not unusual; many catalogs contain a much wider variety of groups. In such cases the catalog should be divided, and each group or page placed in its correct order.

Some pages of a catalog may list items involving two or more numerical locations. This can be easily overcome, however, by inserting the page in one of the locations and by placing a reference sheet or notation in the other group or groups.

Study Assignment

Automotive and Marine Catalog, with the Index Story. Tampa, Fla.: Weatherly Index Co. (Annual).

Weatherly Index for ... Wholesalers' Catalogs (18th Edition). Tampa: Weatherly Index Co., 1964 (or later edition).

After study of the material listed above, describe in writing how you could handle a large parts manufacturer's catalog that contains several groups of unrelated items, but includes no Weatherly indexing numbers.

UNIT C--CATALOGING SYSTEMS

TOPIC 2--JOBBER AND INDEPENDENT SYSTEMS- Study Guide and Test

Study Guide

After you have studied the material in the workbook and the assigned material, complete the exercises as follows: (1) select the word that belongs in each numbered space in an exercise; and (2) write the word at the right in the space that has the same number as the space in the exercise.

1. The Weatherly Index System provides a complete ____1____ and ____2____ index of parts. — 1. __________ 2. __________

2. The Weatherly Index System may be used to insert ____3____ catalog pages into the ____4____ catalog. — 3. __________ 4. __________

3. In addition to automotive parts, both ____5____ and ____6____ items have been assigned Weatherly Index numbers. — 5. __________ 6. __________

4. Index numbers are not assigned to items at ____7____, but are carefully selected to place ____8____ lines together in the catalog. — 7. __________ 8. __________

5. The automotive indexing of parts, supplies, and equipment may be used alone with no loss of system ____9____. — 9. __________

6. The majority of auto manufacturers now ____10____ their catalogs to the Weatherly Index System. — 10. __________

7. In a sense, use of the Weatherly Index is the ____11____ of ordinary procedure. — 11. __________

8. A catalog is usually compiled first, and then provided with a(n) ____12____ of its ____13____. — 12. __________ 13. __________

9. The Weatherly Index uses only ____14____ numbers to designate items. — 14. __________

10. In each major group of the Weatherly Index, ____15____ numbers are assigned. — 15. __________

Test

Read each statement and decide whether it is true or false. Circle T if the statement is true; circle F is the statement is false.

1. Although many systems are used for cataloging auto parts, few systems have gained widespread use. 1. T F

2. The Weatherly Index System can be copied by any jobber for his own use. 2. T F

3. No single cataloging system has been devised to cover both airplane and power boat parts. 3. T F

4. Each manufacturer of parts modifies the Weatherly Index System to fit his catalog. 4. T F

5. There are 100 item numbers in each Weatherly Index major group. 5. T F

6. Hand tools are not indexed in the Weatherly Index System. 6. T F

7. Each major Weatherly Index group is divided into ten subgroups. 7. T F

8. Catalog pages showing items belonging to several groups can be properly filed in a Weatherly system. 8. T F

9. Weatherly Index numbers are essentially random groupings. 9. T F

10. All parts manufacturers key their catalogs to the Weatherly Index System as well as to their own system. 10. T F

unit D • Inventory and Control

TOPIC 1--INVENTORY SYSTEMS

This topic, "Inventory Systems," is planned to help you find answers to the following questions:

- Why is an inventory system necessary in the parts business?
- What constitutes a satisfactory inventory system?
- How is an inventory system set up and maintained?

Any of the various systems that enable a company to obtain accurate and immediate information as to the amount of stock on hand, the quantity sold, the turnover rate, and the number of orders or back orders pending may be properly described as "inventory control systems." The apprentice parts man will refer again and again to the inventory system for information; therefore, he should be intimately acquainted with the working of the system his company uses.

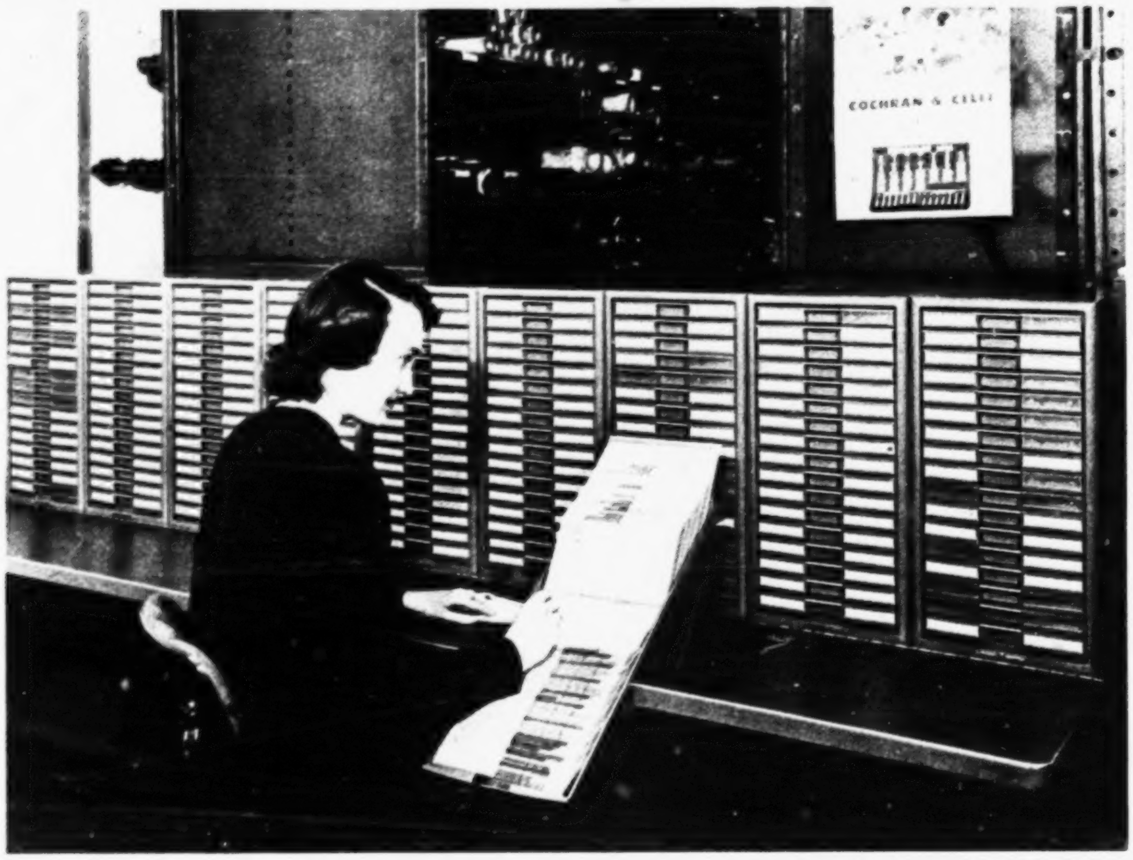
Inventory Records

Manual Systems

Most of the inventory systems now in use by auto parts concerns are of the "Kardex" type. A card-type system uses a single card for each part or accessory stocked. These systems differ only in the design of the card and the way in which the cards are stored. A brief description of three major card systems will follow.

Tub file system. The tub file system uses standard inventory cards held in a tub-like cabinet. The cards are arranged vertically, with suitable dividers to aid quick location. Numerical order is usually arranged from front to rear. The cards may be lifted out quickly for ease in posting. (Posting means making any entry of information on the card.) The tub file requires a minimum of space, and for large inventories this system seems to be the most practical. The Weatherly catalog illustrates a tub file system. (See Topic C-2.)

Roller file. The roller type of inventory file consists of a large revolving wheel arrangement, with cards fixed to the wheel by a circular rod. The cards, each with a hole near its base, are threaded onto the circular rod in numerical order. To refer to a particular card, one need only rotate the wheel until the desired card is found.



Courtesy Cochran and Celli, Oakland

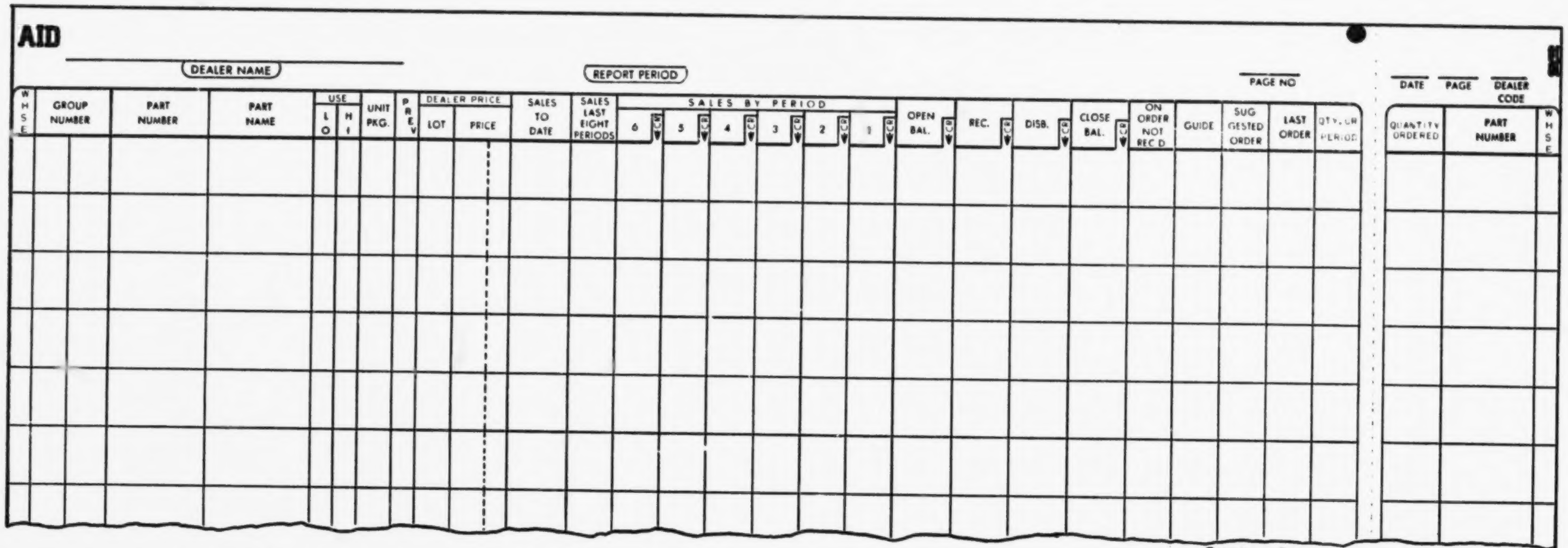
Fig. D—1. A visible-index system of inventory control

Visible-index. The visible-index system is a flat-drawer system in which the cards lie flat on top of each other in a stairstep, hinged arrangement. The drawers, or trays, are about 30 in. long and 1 1/2 in. high. By "stepping" the cards, it is possible to get 70 or more into each tray. The drawers are mounted in a unit cabinet about 30 in. high and 12 in. wide. Each cabinet contains 16 to 18 drawers, and by banking the cabinets an inventory system of any required size can be built. (See Fig. D-1.) In this system the part number and description appear at the bottom of the card, which is visible as soon as the drawer is pulled.

Automated Systems

The large and complicated inventories required by today's automotive businesses have encouraged certain companies to propose automatic inventory control systems. These automated systems are rapidly gaining favor, since they offer better control than some businesses are able to maintain.

One such system will be described briefly. The system is called AID II (Automated Inventory for Dealers). This is an improved version of the AID program, which has been offered for the last few years by the Service Bureau Corporation, a subsidiary of International Business Machines Corporation.



AID

DEALER NAME

REPORT PERIOD

PAGE NO

DATE

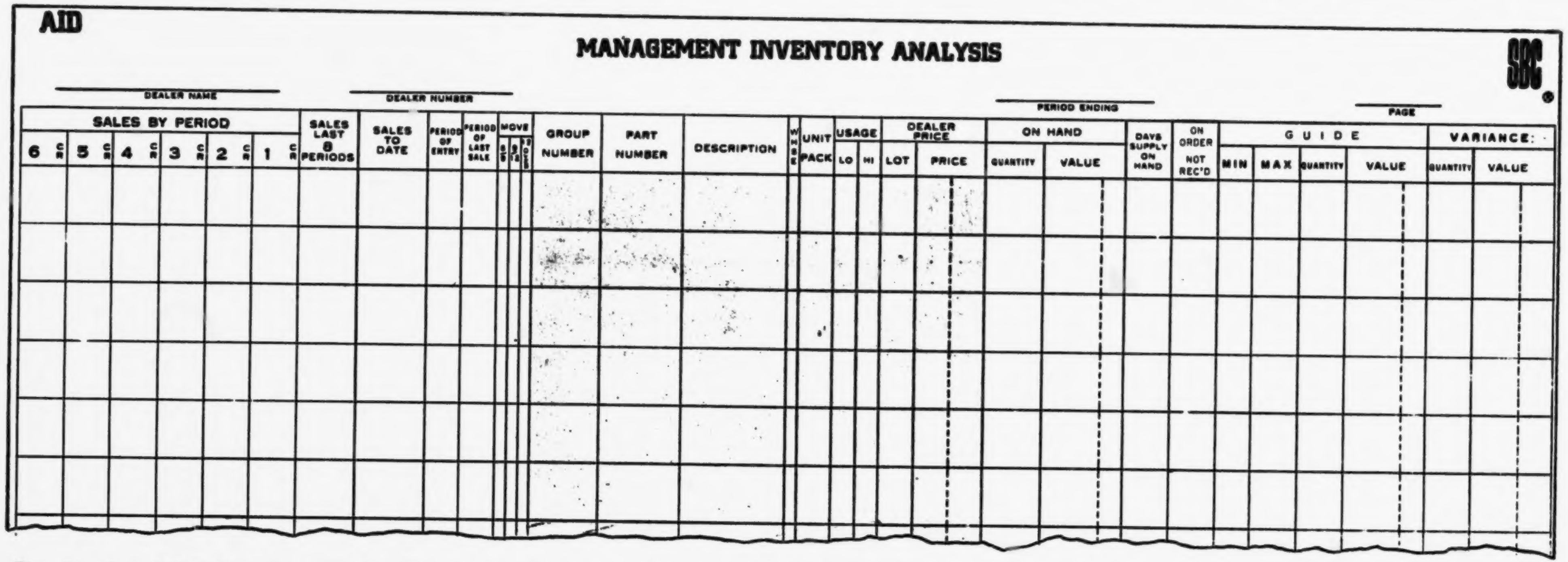
PAGE

DEALER CODE

WHSE	GROUP NUMBER	PART NUMBER	PART NAME	USE LO	USE HI	UNIT PKG.	PREV	DEALER PRICE LOT	DEALER PRICE PRICE	SALES TO DATE	SALES LAST EIGHT PERIODS	SALES BY PERIOD 6	CR	5	CR	4	CR	3	CR	2	CR	1	CR	OPEN BAL.	CR	REC.	CR	DISB.	CR	CLOSE BAL.	CR	ON ORDER NOT REC D	GUIDE	SUG GESTED ORDER	LAST ORDER	QTY. LR PERIOD	QUANTITY ORDERED	PART NUMBER	WHSE

Courtesy Service Bureau Corp., San Francisco

Fig. D—2. AID Parts Activity and Order Report. The right-hand side is perforated and constitutes the weekly order.



AID

MANAGEMENT INVENTORY ANALYSIS

SBC®

DEALER NAME

DEALER NUMBER

PERIOD ENDING

PAGE

SALES BY PERIOD 6	CR	5	CR	4	CR	3	CR	2	CR	1	CR	SALES LAST 8 PERIODS	SALES TO DATE	PERIOD OF ENTRY	PERIOD OF LAST SALE	MOVE 6/6	MOVE 9/12	MOVE 12/OVER	GROUP NUMBER	PART NUMBER	DESCRIPTION	WHSE	UNIT PACK	USAGE LO	USAGE HI	DEALER PRICE LOT	DEALER PRICE PRICE	ON HAND QUANTITY	ON HAND VALUE	DAYS SUPPLY ON HAND	ON ORDER NOT REC'D	GUIDE MIN	GUIDE MAX	GUIDE QUANTITY	GUIDE VALUE	VARIANCE: QUANTITY	VARIANCE: VALUE

Fig. D—3. AID II Management Inventory Analysis. Information is furnished the dealer as to sales activity, dollar value, guide figure, stock on order, and the number of days' supply on hand.

The objective of the AID system is to provide dealers with improved parts department inventory control and management. This objective is met by simplifying the routine of balancing dealer parts stocks and by offering the added advantages of weekly and semiannual reports, plus an automatic parts-ordering procedure.

The AID II provides automatic computation of guide figures for every item and order period. The system produces a weekly parts order. This tends to minimize special orders and to decrease the number of "out-of-stocks."

Dealers who use this system report on a special form their daily sales and shipments received, for each part, to a service bureau. These data are fed into automatic computers that (1) automatically establish and adjust guide figures, (2) reorder when stocks reach 70 percent of guide figure, and (3) automatically print a weekly and semiannual report for the dealer. The reports are detailed and complete, giving the dealer an accurate record of parts activity. (See Figs. D-2 and D-3.) Parts may be added or deleted from the system by simply notifying the bureau.

Inventory Maintenance

Inventory systems, when properly maintained, supply a complete record of every part or accessory in stock. A card for every item stocked must be made out to show group number, part number, description and, if possible, location. A typical tub-file card is shown in Fig. D-4.

Every time a part is ordered, an entry must be made on the inventory card showing the date, quantity ordered, and the order number. When orders are received, the quantity must be entered in the appropriate column of the card and added to the number already in stock. Back orders should be posted along with material received. As back orders are received, the quantity must be added to existing totals, and the back order figure reduced.

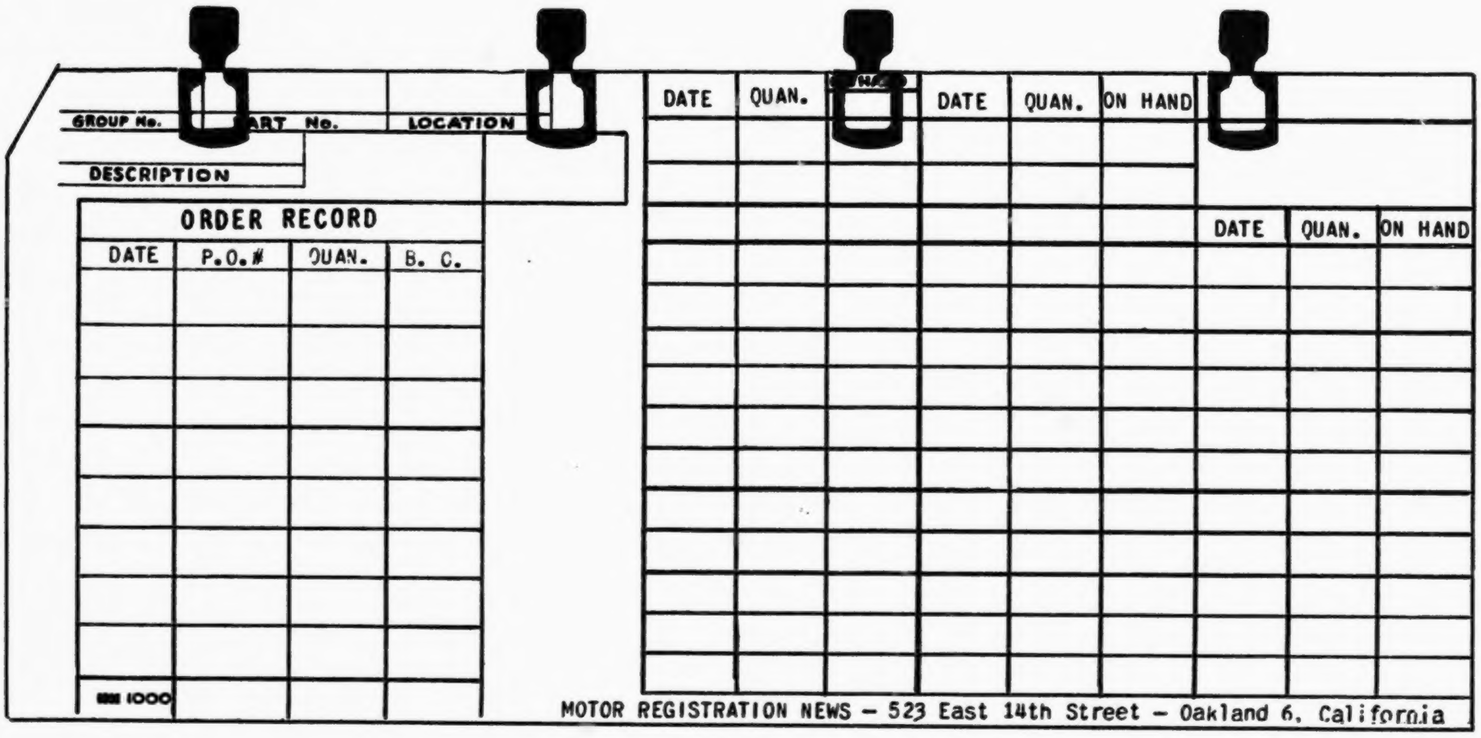
Every sale of a particular part must be posted, showing date of sale, quantity sold, and invoice number. The quantity sold is subtracted each time from the quantity on hand. Similar additions or subtractions must be made for credit memo transactions and replacements of defective parts.

When inventory records are kept accurately, the following information is available: quantities on hand, on order, on back order, and sold in any given period. Thus the general activity of any item can be seen at a glance. From this activity the order clerk can determine how many of a given part should be normally stocked.

Inventory Control

Since all of the card systems are basically alike, some general rules can be formulated for their use. Prompt, accurate posting is essential if the card system is to be effective. If posting falls a week behind, the "quantity on hand"

Note: The inventory card flags shown below are small metal clips that can be temporarily fastened to the upper edge of an inventory card at any location.


GROUP No.
PART No.
LOCATION
DESCRIPTION
ORDER RECORD
DATE
P.O.#
QUAN.
B. C.
DATE
QUAN.
ON HAND
DATE
QUAN.
ON HAND
DATE
QUAN.
ON HAND
1000
MOTOR REGISTRATION NEWS – 523 East 14th Street – Oakland 6, California

Flag card here if stock is low. Order promptly.

Flag card here if a question arises, such as order overdue or parts number conflict.

Flag card here if bin is empty. Order on emergency basis.

Flag special order cards here. If part is not to be stocked, remove and destroy card when part is sold.

Fig. D—4. A typical inventory system card, showing one method of flagging cards to facilitate ordering and control cannot be trusted. One of the real assets of a perpetual inventory is the ability to rely on the cards to show quantities on hand. This is particularly helpful in answering telephone inquiries, often saving a long trip to the bin.

When the quantity of an item reaches an established minimum, the card is flagged for immediate order. (See Fig. D-4.) There is an old saying in the parts business, "You can't do business from an empty cart." Most orders can be placed directly from the cards if quantities are watched and cards flagged. This is much easier than chasing up and down the aisles with an order pad making emergency orders when out of stock.

When a part number is superseded by another number, the new number should be written in on the card above the old number. The old card is left in the file, and a new card showing the new part number is posted and placed in proper sequence in the file. When stock under the old number is depleted and the new number is firmly established as replacing the old, the old card may be destroyed.

A guide figure is established for each part. A guide figure is simply the quantity to be kept in stock. By carefully matching the sales against stock received and taking into account time required for replenishment, it is possible to determine the proper amount of stock to keep on hand. By timely ordering when the card shows the established minimum number on hand, a shortage of any item can usually be prevented. However, the guide figure should not be viewed as permanent. Over a period of time sales will increase and decrease, and a periodic adjustment of the guide figure will be necessary.

Special Orders

Special orders are always a problem for the inventory clerk. More and more special orders are required, since an agency cannot possibly keep in stock all the required parts. A method of handling special orders using a tub-file card system will be described below. With certain variations, the method may be adapted to other card systems.

When a special order is placed, a suitable form should be used showing customer name, address, phone, date, and parts ordered. This form may be of company design or may be purchased commercially. If the order originated in the company shop, the repair order number should be shown, along with a complete model description of the vehicle. Special orders from the shop should be approved by the shop foreman. The completed special order form is then given to the inventory clerk who in turn makes out a temporary special order inventory card for each part ordered. This special order card should be of a different color from stock cards and should be flagged as shown in Fig. D-4 before it is inserted into the card system. The special order card should be keyed to the original order (preferably by name), so that when the part arrives, the inventory clerk will know immediately that it is a special order and for whom it is intended. The original special order form, which has been filed in a suitable manner while awaiting receipt of the part, is now consulted and the customer notified that the part has arrived. A form letter or post card is normally used for notification. When the sale is completed, the order form and the temporary inventory card may be filed or destroyed, as provided by company procedure.

UNIT D--INVENTORY AND CONTROL

TOPIC 1--INVENTORY SYSTEMS- Study Guide and Test

Study Guide

After you have studied the material in the workbook, complete the exercises as follows: (1) select the word that belongs in each numbered space in an exercise; and (2) write the word at the right in the space that has the same number as the space in the exercise.

1. A card-type inventory system utilizes a single card for every ___1___ or ___2___ stocked.
   1. ____________
   2. ____________

2. In the visible-index system of inventory control the cards are stowed in ___3___ ___4___.
   3. ____________
   4. ____________

3. The ___5___ type of inventory file has the cards arranged on a large wheel.
   5. ____________

4. For large inventories the ___6___ system seems to be the most practical.
   6. ____________

5. Inventory systems, when properly ___7___, supply a complete ___8___ of every part or accessory in stock.
   7. ____________
   8. ____________

6. Every time a part is ordered, a(n) ___9___ must be made on the inventory card.
   9. ____________

7. The number of items received is ___10___ to the number already in stock on the inventory card.
   10. ____________

8. From the information on the inventory card, the general ___11___ of any item can be determined.
   11. ____________

9. Prompt, accurate ___12___ is essential if the card system is to be effective.
   12. ____________

10. When the quantity of an item reaches a minimum, its card is ___13___ for immediate order.
    13. ____________

11. A ___14___ figure is established for every part.
    14. ____________

12. A periodic ___15___ of the guide figure will be necessary.
    15. ____________

Test

Read each statement and decide whether it is true or false. Circle T if the statement is true; circle F if the statement is false.

1. A satisfactory inventory control system is a "must" for an auto parts business. 1. T F
2. A satisfactory inventory system must provide accurate and immediate information. 2. T F
3. Operation of any inventory system is based on regular monthly physical inventories. 3. T F
4. Most current inventory systems use cards. 4. T F
5. Most current inventory systems use tub files. 5. T F
6. In the visible-index systems, each card is identified at the top. 6. T F
7. Automated inventory control systems are available. 7. T F
8. No physical inventories are required with the AID system. 8. T F
9. The establishment of guide figures is based on sales history. 9. T F
10. The guide figure is the quantity ordered each time. 10. T F
11. Guide figures are not affected by special orders. 11. T F
12. Special order stock cards may be discarded or retained. 12. T F

UNIT D--INVENTORY AND CONTROL

TOPIC 2--STOCK CONTROL

This topic, "Stock Control," is planned to help you find answers to the following questions:

- What factors and operations does stock control comprise?
- How many of each part should be carried in stock?
- What advance preparations can make physical inventories easier to accomplish?
- Of what significance is total inventory value?

The success or failure of any auto parts organization depends in large measure on the operation of its purchasing department. Automotive parts, in a practical sense, are perishable items. The majority of auto parts and accessories are designed for specific models and may rapidly become outmoded and obsolete. They are limited in interchangeability and seldom can be converted to other uses. When the many factors that depreciate the sales value of replacement parts and equipment are considered together with the large number of items that must be carried in stock, little imagination is required to see that a considerable amount of money can be lost by a company that carries many slow-moving or obsolete items. The purchasing department must be well-organized and operated efficiently to ensure stock availability, uniformity, and profit-making turnover.

Stock Turnover

A definite stock control plan is essential to maintaining a well-balanced stock of parts. A stock of merchandise is considered adequate and balanced when it is possible to supply most of the items requested without undue delay and without an excessive inventory. A stock turnover of four to six times a year is considered ideal for the most profitable operation. The rate mentioned above does not imply that four to six of every item will be sold in the course of a year. Obviously, many parts sell much more rapidly, while some parts sell only one or two per year. The "turnover" refers to total gross sales. A company with a $50,000 parts inventory should have yearly gross sales of $200,000 to $300,000, which is four to six times the cost of the inventory.

A stock turnover less than four times a year ties up, in slow-moving stock, capital that could be used more profitably. If there is a complete stock turnover more than six times a year, the stock is usually out of balance, and business is probably being lost because of inability to fill orders completely. There is often an element of false economy in a high turnover rate. It suggests that not enough stock is carried in inventory and that only fast-moving items are being sold. A certain number of average and slow-moving parts must be stocked if orders are to be filled completely and customer goodwill retained. A parts store that is consistently out of needed slow-moving parts will lose favor with its customers.

Control by Guide Figures

The inventory system, properly maintained, is the best guarantee of adequate stock control. With the customary large inventories of today, it is physically impossible for the order clerk to remember the sales activity of every part in stock. He may be conscious of the fact that a part is "slow" or "fast" in selling, but he cannot know how fast or slow unless a definite record of purchases and sales is made. The inventory card can supply such a record.

Normally, the order clerk should try to keep a 90-day supply of every item on hand. This will ensure a stock turnover four times a year and will not tie up working capital in too large an inventory. If a 90-day supply is maintained, there is little danger of shortages, with consequent lost sales.

Maintaining a 90-day supply is a relatively easy task with a good inventory system. The first thing to do is to establish a guide figure equal to the 90-day supply of each item. The guide figure is based on the sales activity as shown on the inventory card. If an item shows consistent sales of five or six per month, then a guide figure of approximately 15 should be used. Some items will not show regular sales patterns, but may reflect large sales one month and few the next. In such cases an average may be taken over a three-month period and used as a guide figure.

Regular orders must be placed if the guide figure is to be effective. When the quantity of a certain part drops to approximately two-thirds of the guide figure, the part should be reordered. In the sample guide figure of 15 mentioned above, when the quantity drops to 10, the part should be reordered. By ordering 5 of that particular item, the order clerk can maintain a balanced stock. If similar guide figures are established for every item in stock, then ordering procedures are simplified and adequate stock maintained. Consideration should of course be given to standard ordering quantities and pricing factors.

Guide figures are not permanent. As sales rates increase and decrease, guide figures must be reappraised and revised. If an item is consistently "out of stock," the guide figure is no longer adequate and must be revised upward. Conversely, if the sale of an item slows and the item no longer turns over regularly, a lower guide figure is in order.

Establishing the Stock

It may be inferred that a balanced stock is primarily the maintenance of adequate quantities of every item. But just what parts should be carried in stock? Since this is a subject of very large scope, it can be dealt with only in a very general way.

The order or inventory clerk is often separated from direct sales. He can discern from the inventory system the activity of every part in stock, but he cannot know how many sales are consistently lost because the part is not carried in inventory. This problem is compounded by the fact that each year thousands of new parts are produced, and the inventory clerk must help decide which of these are important to stock. At the same time he must appraise his present stock and delete those items which are no longer profitable or necessary. There is no easy way to do this. At the beginning of each model year, new car manufacturers supply an "initial order" which serves to establish an initial stock of new parts to be added to the dealer's inventory. This is not a final solution, however, and the inventory clerk or parts manager must ultimately select the items to be regularly stocked. The selection can best be made on the basis of what groups of parts have already proven necessary. Certain items may be assumed to be necessary, such as ignition parts, brake shoes, universal joints, transmission parts, and so forth. Most parts should be selected on the basis of proven requirements from the records and experience of past years.

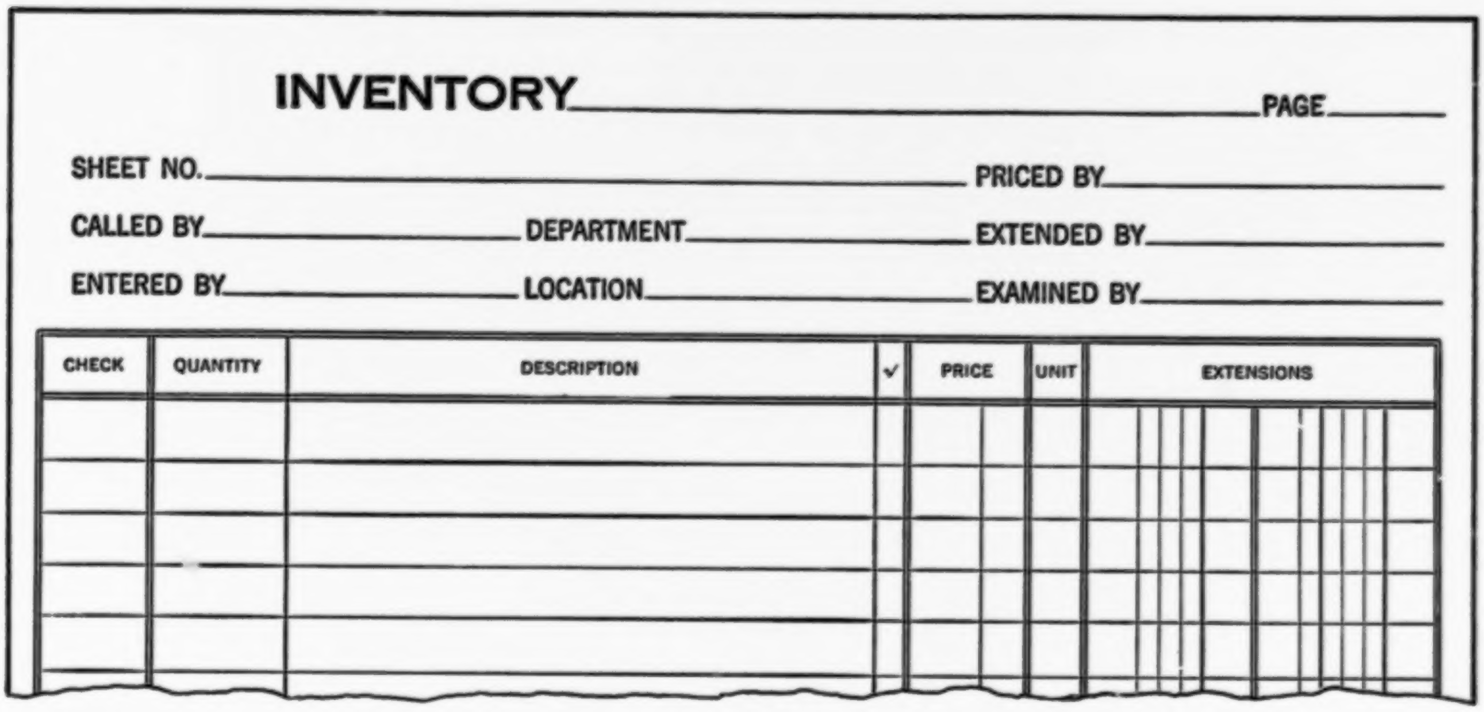
Regardless of how carefully one may select new parts to stock, some items will be overlooked. One way to correct this is to keep a "want list" posted at the parts counter. Each time a part is requested which is not carried in stock, the salesman should record the part number of the lost sale on the want list. If a certain number repeatedly appears on the list, the inventory clerk should add that part to the inventory.

Physical Inventory

At least once each year a complete physical inventory must be taken. The annual inventory establishes an accurate inventory cost for purposes of tax assessment, and it tells the owner whether accurate (and honest) records are being kept.

The yearly inventory requires a substantial amount of work, but it is absolutely essential to stock maintenance and control. Employees should begin well in advance to prepare for the physical count. Bins should be cleaned, and open cartons examined for their content. If the contents are intact, boxes should be resealed and stacked in an orderly manner to facilitate counting. Kits with missing parts should be broken down and the parts individually binned, or the missing parts replaced and the kit sealed. Overage (extra stock) should be brought from store rooms or taken from the tops of bins and placed in the proper location. All miscellaneous parts must be identified and tagged.

Some smaller companies continue to take inventory by hand. (See Fig. D-5.) That is, a handwritten list of every part stocked is made, showing the group number, part number, noun name, quantity, unit price, and bin location. This is a tedious job usually done well in advance, leaving only the quantity of each item to be recorded on the actual day of inventory. After the count, the inventory sheets must be extended (quantity times unit price) and a total cost figure determined. Parts and accessories are usually counted as separate inventory groups.



INVENTORY ______________________ PAGE ______

SHEET NO. ______________________ PRICED BY ______

CALLED BY ______ DEPARTMENT ______ EXTENDED BY ______

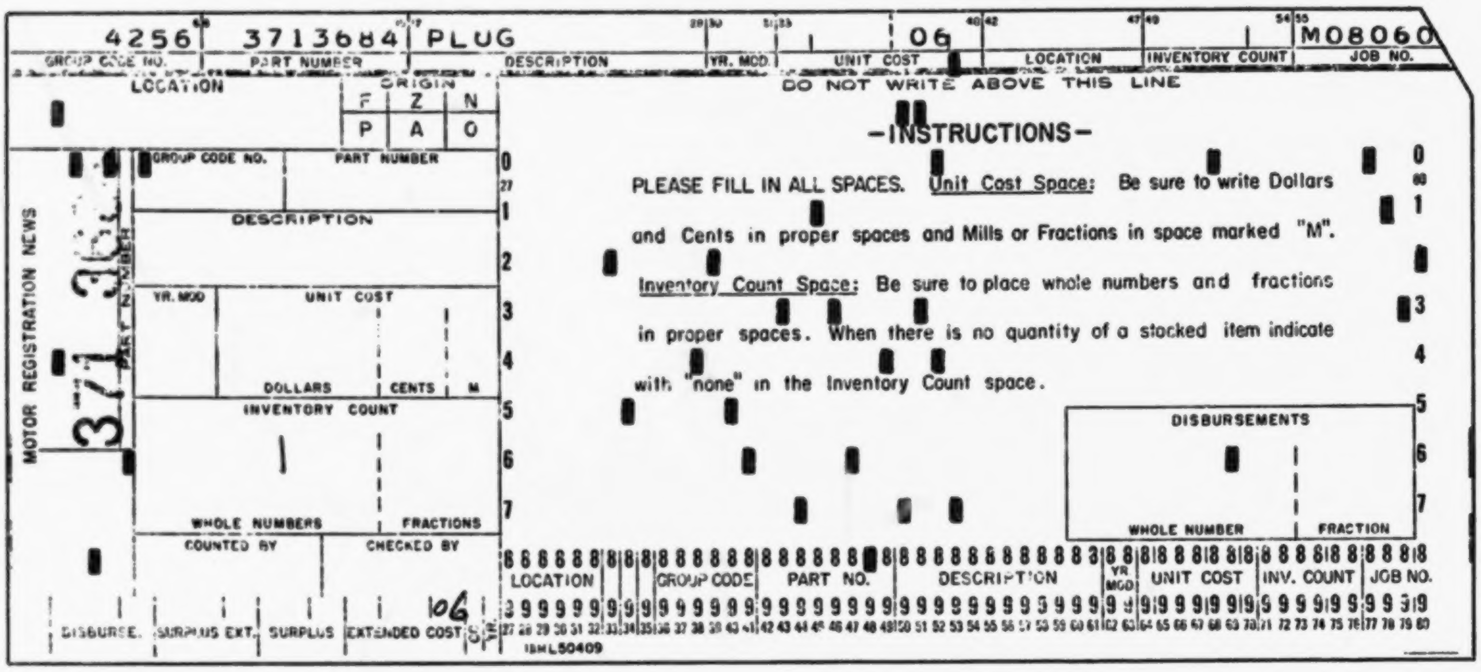
ENTERED BY ______ LOCATION ______ EXAMINED BY ______

CHECK	QUANTITY	DESCRIPTION	✓	PRICE	UNIT	EXTENSIONS

Fig. D—5. A write-in inventory sheet

Larger businesses may employ inventory service companies. A punched card is made up for every part stocked, leaving only the quantity to be written in. (See Fig. D-6 and D-7.) These cards are placed in the proper bins shortly before inventory, and on the day of the count only the quantities must be recorded on each card. The cards are then machine processed by the inventory company to yield a complete record.

When the inventory record is completed, the inventory clerk should promptly check it against his cards and correct the cards as necessary. Since the clerk must examine each card in the system, this is an excellent time to analyze the record of each part, evaluate the stock, and revise the prescribed stock levels. Parts that are no longer selling should be deleted and disposed of. (Most automotive manufacturers have a provision for returning unwanted or obsolete merchandise.) Quantities too large should be reduced. Part number discrepancies often come to light during inventories, and these must be traced out and corrected. In spite of the additional work involved, the annual inventory should be made an opportunity for cleaning and balancing the stock on hand and adjusting the records involved.



4256 | 3713684 | PLUG | 06 | M08060

GROUP CODE NO. | PART NUMBER | DESCRIPTION | YR. MOD. | UNIT COST | LOCATION | INVENTORY COUNT | JOB NO.

LOCATION | ORIGIN F Z N / P A O

DO NOT WRITE ABOVE THIS LINE

-INSTRUCTIONS-

PLEASE FILL IN ALL SPACES. Unit Cost Space: Be sure to write Dollars and Cents in proper spaces and Mills or Fractions in space marked "M". Inventory Count Space: Be sure to place whole numbers and fractions in proper spaces. When there is no quantity of a stocked item indicate with "none" in the Inventory Count space.

DISBURSEMENTS — WHOLE NUMBER | FRACTION

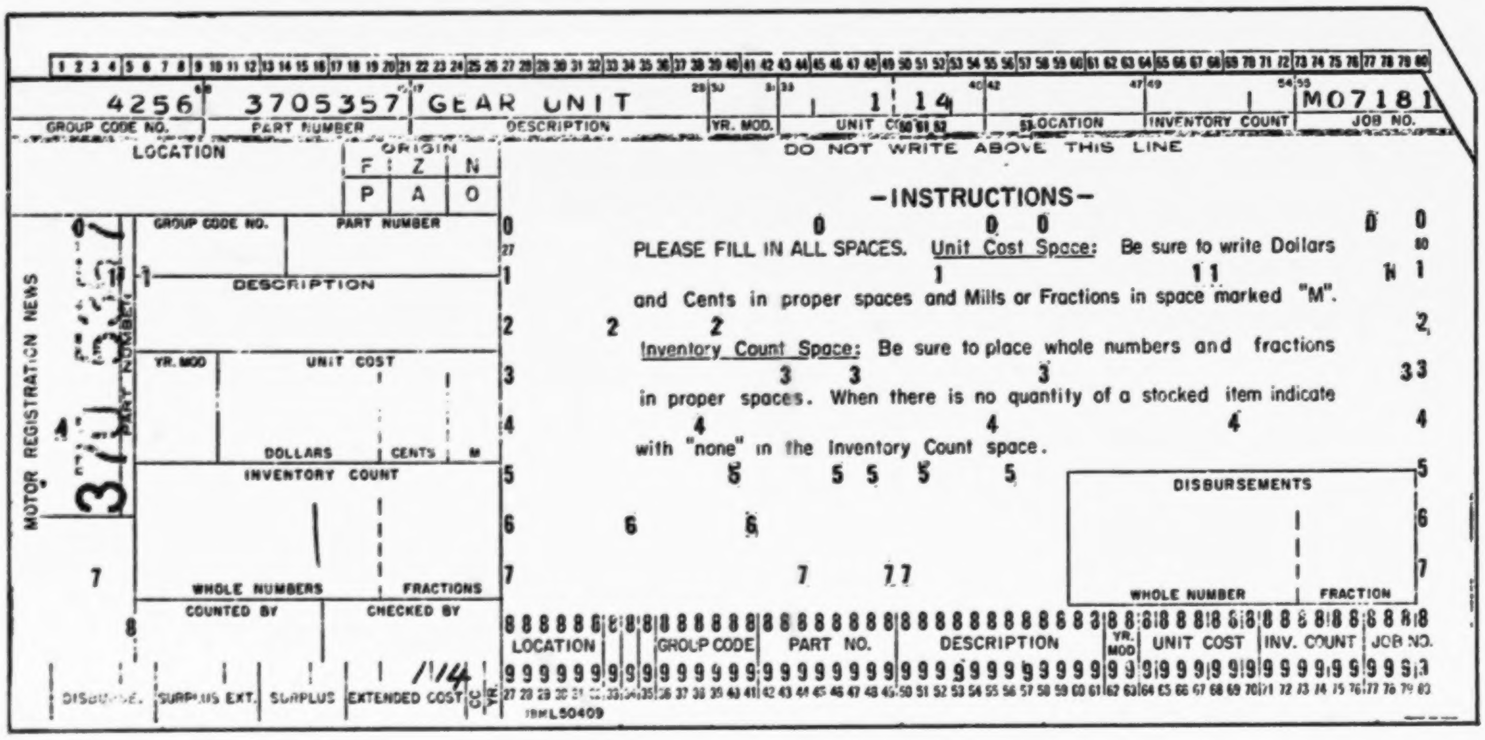
MOTOR REGISTRATION NEWS — GROUP CODE NO. | PART NUMBER — DESCRIPTION — YR. MOD | UNIT COST: DOLLARS | CENTS | M — INVENTORY COUNT: 1 — WHOLE NUMBERS | FRACTIONS — COUNTED BY | CHECKED BY

DISBURSE. | SURPLUS EXT. | SURPLUS | EXTENDED COST 106

LOCATION | GROUP CODE | PART NO. | DESCRIPTION | YR. MOD | UNIT COST | INV. COUNT | JOB NO.

IBM L50409

Fig. D—6. A machine-punched card prepared for an annual inventory. Only the quantity is entered by hand, and the card is returned to the inventory company for machine processing.



4256 | 3705357 | GEAR UNIT | 1 14 | M07181

GROUP CODE NO. | PART NUMBER | DESCRIPTION | YR. MOD. | UNIT COST | LOCATION | INVENTORY COUNT | JOB NO.

LOCATION | ORIGIN F Z N / P A O

DO NOT WRITE ABOVE THIS LINE

-INSTRUCTIONS-

PLEASE FILL IN ALL SPACES. Unit Cost Space: Be sure to write Dollars and Cents in proper spaces and Mills or Fractions in space marked "M". Inventory Count Space: Be sure to place whole numbers and fractions in proper spaces. When there is no quantity of a stocked item indicate with "none" in the Inventory Count space.

DISBURSEMENTS — WHOLE NUMBER | FRACTION

MOTOR REGISTRATION NEWS — GROUP CODE NO. | PART NUMBER — DESCRIPTION — YR. MOD | UNIT COST: DOLLARS | CENTS | M — INVENTORY COUNT: 1 — WHOLE NUMBERS | FRACTIONS — COUNTED BY | CHECKED BY

DISBURSE. | SURPLUS EXT. | SURPLUS | EXTENDED COST 1/14

LOCATION | GROUP CODE | PART NO. | DESCRIPTION | YR. MOD | UNIT COST | INV. COUNT | JOB NO.

IBM L50409

Fig. D—7. An inventory count card superimposed on a "blank" card, whose numbers show through the punched openings of the inventory card. All the pertinent information is represented by the locations of the holes, e.g., the part number (3705357) is found in columns 43–49.

UNIT D--INVENTORY AND CONTROL

TOPIC 2--STOCK CONTROL - Study Guide and Test

Study Guide

After you have studied the material in the workbook, complete the exercises as follows: (1) select the word that belongs in each numbered space in an exercise; and (2) write the word at the right in the space that has the same number as the space in the exercise.

1. Auto parts, in a practical sense, are ___1___ items.
   1. ____________

2. A stock of parts is considered ___2___ and ___3___ when it is possible to supply most of the items requested without undue delay.
   2. ____________
   3. ____________

3. A stock turnover of ___4___ to ___5___ times a year is considered ideal.
   4. ____________
   5. ____________

4. Stock turnover refers to total ___6___.
   6. ____________

5. A parts store that is consistently out of needed parts will lose ___7___.
   7. ____________

6. A(n) ___8___ system, properly maintained, is the best ___9___ of adequate stock control.
   8. ____________
   9. ____________

7. The order clerk should keep a ___10___ supply of every item on hand.
   10. ____________

8. If ___11___ figures are established for each item in stock, ordering procedures are simplified and ___12___ stock maintained.
   11. ____________
   12. ____________

9. The inventory clerk or ___13___ must ultimately select the items to be stocked.
   13. ____________

10. If a certain item consistently appears on the ___14___ ___15___, the part should be added to the inventory.
    14. ____________
    15. ____________

11. At least once each year a complete ___16___ inventory must be taken.
    16. ____________

12. Parts and accessories are usually taken as ___17___ inventories.
    17. ____________

13. On a punched inventory card, only the __18__ must be recorded. 18. ____________

14. The annual inventory is an opportunity to __19__ and __20__ the stock.

19. ____________
20. ____________

Test

Read each statement and decide whether it is true or false. Circle T if the statement is true; circle F is the statement is false.

1. Some automobile parts soon become obsolete. 1. T F

2. A 180-day stock turnover rate is ideal. 2. T F

3. The stock turnover rate is figured on gross sales. 3. T F

4. Stock turnover is a good indicator of stock balances. 4. T F

5. The primary tool of stock control is the inventory card. 5. T F

6. The guide figure, once established, should never be changed. 6. T F

7. A guide figure may be established from average annual sales. 7. T F

8. The manufacturer's "initial order" of new parts solves the new model problem. 8. T F

9. The value of the inventory on hand may have a bearing on local tax bills. 9. T F

10. To extend an inventory means to add new items. 10. T F

UNIT D--INVENTORY AND CONTROL

TOPIC 3--ORDERING AND PURCHASING

This topic, "Ordering and Purchasing," is planned to help you find answers to the following questions:

- What are the most common kinds of orders?
- What procedures should be followed in placing orders?
- What governs granting of discounts to buyers?
- What part do manufacturers' representatives play in the parts business?

Ordering merchandise is an important function in the automobile parts business. A good knowledge of the various standard kinds of orders, as well as of general purchasing procedures, is usually required of the auto parts man. Such knowledge can also pave the way for his promotion to jobs of increasing responsibility.

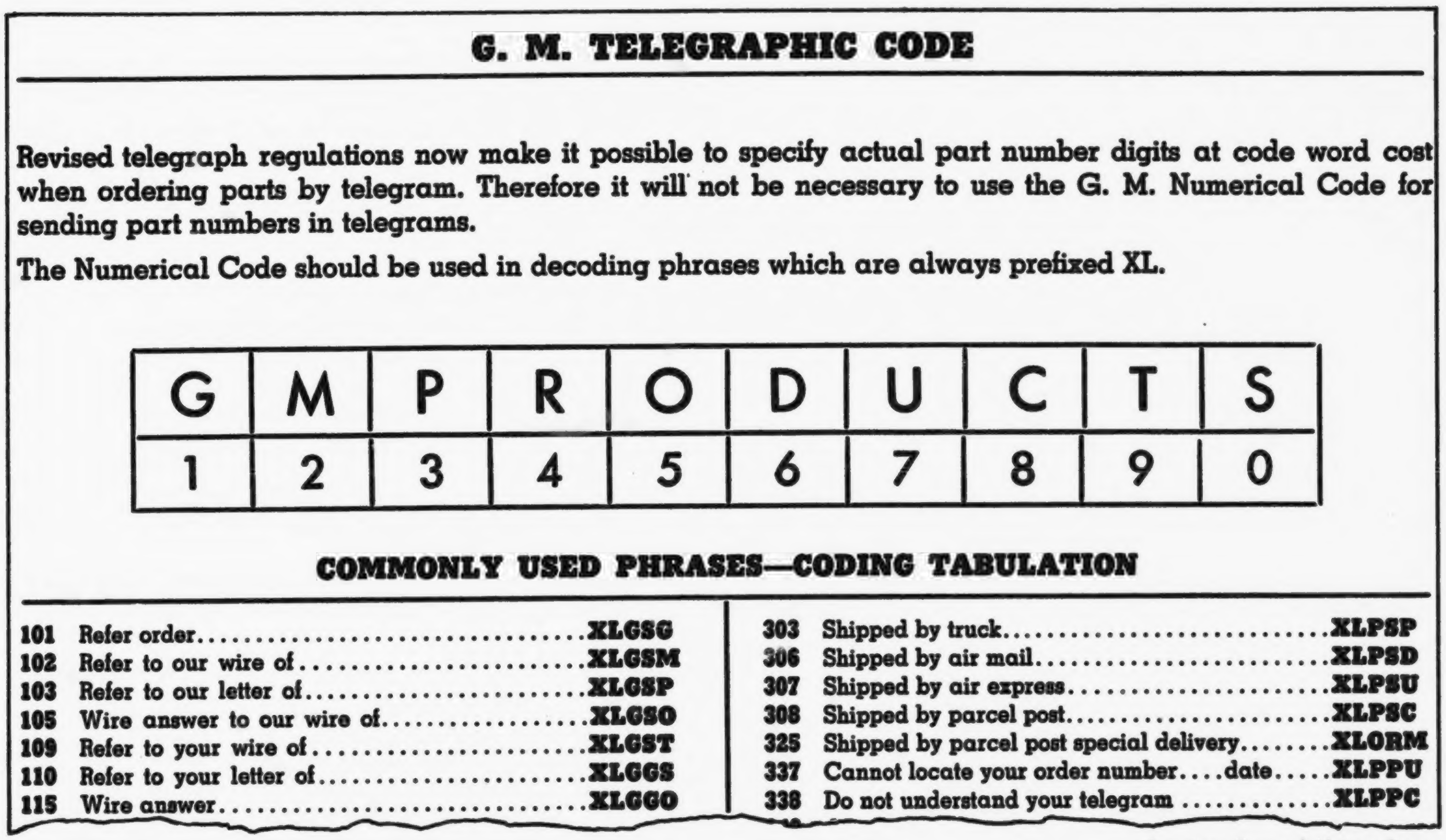
Kinds of Orders

The Stock Order

The stock order is the principal order. It is placed regularly on or before a set date, which may be weekly or monthly. This is the standard order used for normal replacement of depleted stock. This order is referred to in agencies and dealerships as the "pad" order. Shipment of most stock orders is prepaid by the manufacturer. Some stock orders carry an additional discount if they are placed before a certain date or for a given quantity or value.

Intermediate Orders

Intermediate orders are unscheduled stock orders placed at any time. They are supplementary to the stock orders and are used to replace quickly items regularly stocked whose quantities have been depleted through unexpected sales or through some ordering or shipping oversight. They may also serve to obtain a needed new item before the next stock order. The intermediate order usually does not carry any special discount, and shipment is prepaid by the manufacturer only if it reaches a stated dollar amount.



G. M. TELEGRAPHIC CODE

Revised telegraph regulations now make it possible to specify actual part number digits at code word cost when ordering parts by telegram. Therefore it will not be necessary to use the G. M. Numerical Code for sending part numbers in telegrams.

The Numerical Code should be used in decoding phrases which are always prefixed XL.

G	M	P	R	O	D	U	C	T	S
1	2	3	4	5	6	7	8	9	0

COMMONLY USED PHRASES—CODING TABULATION

101	Refer order	**XLGSG**
102	Refer to our wire of	**XLGSM**
103	Refer to our letter of	**XLGSP**
105	Wire answer to our wire of	**XLGSO**
109	Refer to your wire of	**XLGST**
110	Refer to your letter of	**XLGGS**
115	Wire answer	**XLGGO**
303	Shipped by truck	**XLPSP**
306	Shipped by air mail	**XLPSD**
307	Shipped by air express	**XLPSU**
308	Shipped by parcel post	**XLPSC**
325	Shipped by parcel post special delivery	**XLORM**
337	Cannot locate your order number....date	**XLPPU**
338	Do not understand your telegram	**XLPPC**

Courtesy General Motors Corp.

Fig. D—8. Telegraphic code used for emergency orders or queries

Emergency Orders

Emergency orders are special orders requesting immediate shipment by rapid means of merchandise that is urgently needed. An emergency order may be used for stock items when stocks are completely exhausted, but is more frequently used for items not normally carried in stock. Among agencies this is called a "car tie-up" order. Emergency orders are usually placed by telephone or telegraph to the nearest manufacturer's warehouse. When telegrams are used to place orders or to make inquiries concerning orders, special telegraphic codes are often used. (See Fig. D-8.)

Local Buy-outs

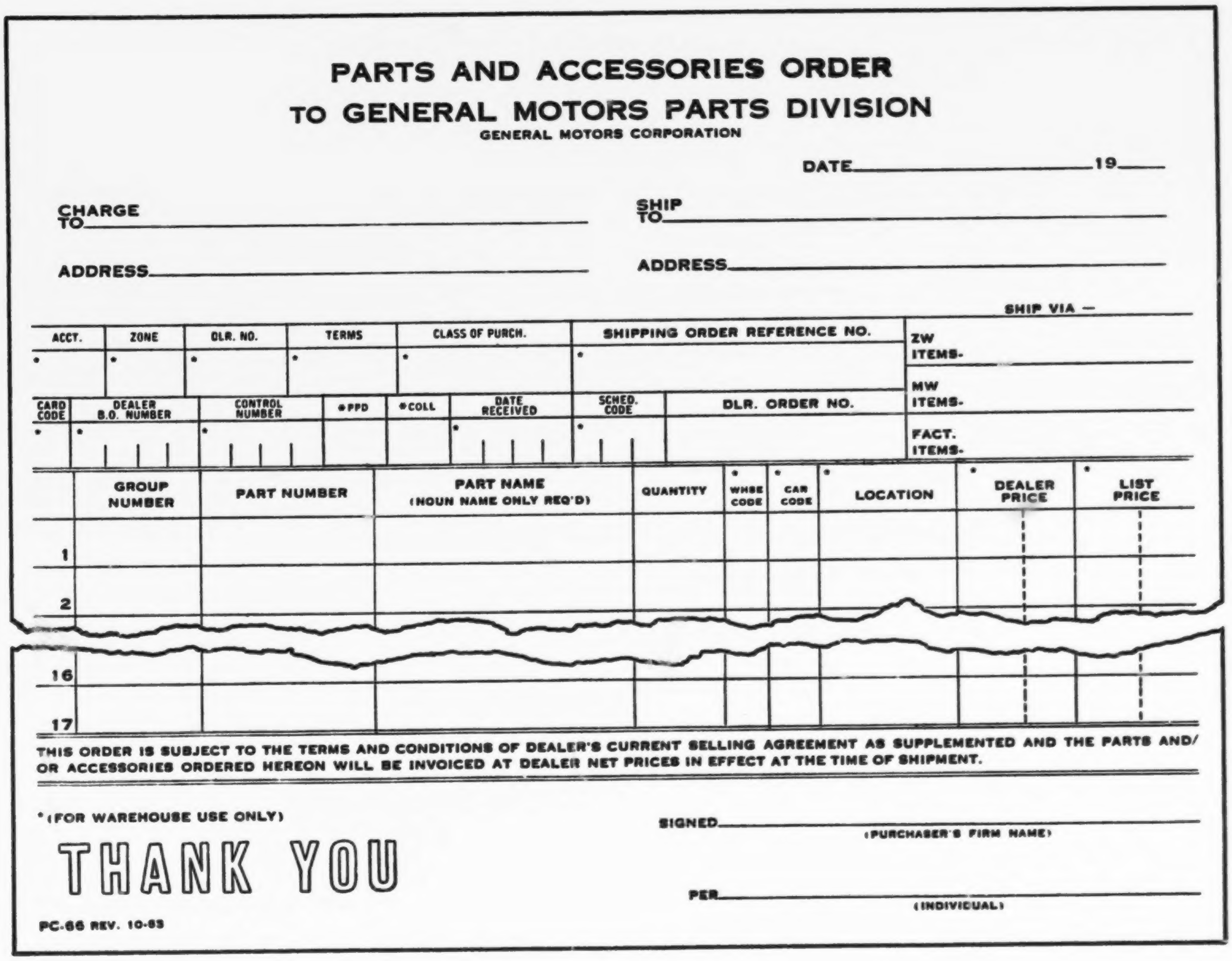
Local buy-outs are usually small emergency orders to be filled by a local dealer or warehouse. These orders are normally used only for one or two items needed to complete a customer order or a job in the shop. Many dealers try not to use local buy-outs because of the short discounts allowed on such orders. If a price has been quoted on a shop job or on a merchandise order and a local buy-out becomes necessary, most companies consider that the item is a special purchase and charge accordingly.

Order Forms and Ordering

Order blanks assume many forms. The dealer "pad" order mentioned earlier is a carefully planned, numerically arranged pad of order blanks furnished by the manufacturer and designed to facilitate both ordering and processing. Pad orders, used for placing the regular stock order, normally provide a space for a guide figure to be inserted and may indicate the national sales activity of each item by various symbols.

In addition to the order pad mentioned above, many manufacturers supply order forms for various stock and supplementary orders. (See Fig. D-9.) Orders placed on such forms are subject to all the conditions set forth on the particular form used.

Not all manufacturers furnish ready-to-use forms. In such cases, order forms are usually made up to individual specifications and include, in essence, the information indicated in Fig. D-9.



PARTS AND ACCESSORIES ORDER
TO GENERAL MOTORS PARTS DIVISION
GENERAL MOTORS CORPORATION

DATE________________19____

CHARGE TO________________ SHIP TO________________

ADDRESS________________ ADDRESS________________

SHIP VIA —

ACCT.	ZONE	DLR. NO.	TERMS	CLASS OF PURCH.	SHIPPING ORDER REFERENCE NO.	ZW ITEMS-
*	*	*	*	*	*	MW ITEMS-

CARD CODE	DEALER B.O. NUMBER	CONTROL NUMBER	*PPD	*COLL	DATE RECEIVED	SCHED. CODE	DLR. ORDER NO.	FACT. ITEMS-
*	*	*			*	*		

	GROUP NUMBER	PART NUMBER	PART NAME (NOUN NAME ONLY REQ'D)	QUANTITY	* WHSE CODE	* CAR CODE	* LOCATION	* DEALER PRICE	* LIST PRICE
1									
2									
16									
17									

THIS ORDER IS SUBJECT TO THE TERMS AND CONDITIONS OF DEALER'S CURRENT SELLING AGREEMENT AS SUPPLEMENTED AND THE PARTS AND/OR ACCESSORIES ORDERED HEREON WILL BE INVOICED AT DEALER NET PRICES IN EFFECT AT THE TIME OF SHIPMENT.

*(FOR WAREHOUSE USE ONLY)

SIGNED________________
(PURCHASER'S FIRM NAME)

THANK YOU

PER________________
(INDIVIDUAL)

PC-66 REV. 10-63

Fig. D—9. Specimen order form

Placing the actual order involves certain precautions. In placing stock orders, where large quantities are often involved, care must be taken to maintain a balanced stock. Since there is a continuing element of obsolescence, quantities too large are potentially dangerous. Quantities to be ordered should be judged by the recent sales activity of the item. Guide figures should be carefully derived and revised periodically as the sales pattern of an item changes. Accurate guide figures make ordering simpler, allowing the order clerk to order only the needed quantity and to avoid the danger of either understocked or overstocked shelves.

Many shipping errors and delays can be avoided if a few simple rules are observed:

- Use the correct order form and fill it out completely.
- Write or print orders clearly and legibly.
- Fill in all necessary information as to consignee, destination, method and terms of shipment, and the number and description of each item ordered.
- Have all orders signed by an authorized person.
- Furnish a list of authorized signatures to the firms with whom business is regularly done.
- Make all orders at least in duplicate; retain one copy for record.
- Place orders on time to ensure timely shipment. Delayed orders mean delayed shipments and lost sales.
- Take full advantage of discounts. Many manufacturers allow an additional discount for stock orders placed on or before a certain date. On a $5,000 order, a 5 percent extra discount means a $250 clear profit, simply by placing the order on time.
- Take advantage whenever possible of ordering standard quantities offered at prices lower than odd lots.

Pricing and Discounts

An individual firm or corporation from whom purchases are made is a vendor. A vendor can be a manufacturer, a wholesaler, or a commission merchant. The words "discount" or "vendor's discount" indicate a deduction from the billing price of the merchandise allowed to the buying dealer or wholesaler. This discount is usually allowed to encourage quantity buying and prompt payment of bills.

There are four general types of pricing and discounts: retail (or list), trade, cash, and extra dating.

Retail Prices

Retail prices, or manufacturer's list prices, are those usually paid by the customer who ultimately uses the parts in question. When the customer pays for a repair job on his car or when he buys parts directly from the dealer, he usually pays retail prices. These are more accurately called "suggested" retail prices and are subject to some differences among various firms.

Trade Discounts

Trade discounts are given to garagemen, service station operators, auto body and fender shops, and auto and truck fleet operators. The trade discount is deducted from the list or retail price, and it varies considerably, depending on the purchaser and the type of material purchased. The range of trade discounts is both very complex and extremely varied throughout the country. Trade discounts range from 10 percent on some major assemblies to 60 percent on fast-moving competitive items. The student-apprentice must become acquainted firsthand with the pricing policies of his company and of other firms dealt with.

Cash Discounts

Cash discounts are given to tradesmen who pay cash at time of purchase or who pay their bills promptly. Some companies use 2 percent as a premium cash discount. Customers who pay cash receive 2 percent off the net purchase price at the time of sale. If the customer has a charge account, his statement may be marked "2%, 10th. prox.," which means he may deduct 2 percent if the bill is paid before the 10th day of the following month.

Extra Dating

Extra dating means that a discount will be available for items purchased and delivered on a certain date and marked payable in 30, 60, or 90 days. This type of discount is usually given on items that are called "stocking items." In other words, if a dealer wants to have a stock of parts on hand and does not want to pay for the stock in one payment, he may ask for extra dating to spread the payments over a period of time without losing the cash discount saving.

Manufacturer's Representatives

Many orders are placed with a manufacturer's representative or salesman. Most large manufacturers and suppliers are represented by such persons, who call periodically at the customer's place of business. These salesmen can be both a convenience and a nuisance. As a convenience, the manufacturer's representative is able to take merchandise orders directly, often aiding the buyer by timely suggestions as to quantities and choice of merchandise. He can introduce the buyer to new products and explain their qualities at first hand.

If problems arise concerning the merchandise, it is possible to obtain immediate and satisfactory adjustments. The representative will often aid in the yearly inventory by helping to count and price the merchandise he sells.

Representatives and salesmen can be nuisances in several ways. They may call during the busiest times and take the buyer away from other important work. Some salesmen have a long-winded and elaborate "sales pitch" which robs the buyer or order clerk of valuable time. Some of the merchandise offered by salesmen is inferior to, or a duplication of, merchandise already stocked. Yet the buyer often feels obligated, in all courtesy, to hear the salesman through. Some buyers and parts managers have, from necessity, set aside certain hours in which they will see these representatives; some also limit each call to a specified length of time.

Study Assignment

Report in writing, in about one page, to your instructor the stock order method used where you work. If standard order forms are used, describe the forms and the data they contain.

UNIT D--INVENTORY AND CONTROL

TOPIC 3--ORDERING AND PURCHASING - Study Guide and Test

Study Guide

After you have studied the material in the workbook and the assigned material, complete the exercises as follows: (1) select the word that belongs in each numbered space in an exercise; and (2) write the word at the right in the space that has the same number as the space in the exercise.

1. A(n) ___1___ order is a major order placed on or before a set date.
   1. __________

2. Intermediate orders are ___2___ stock orders.
   2. __________

3. ___3___ orders are special orders requesting immediate shipment of merchandise.
   3. __________

4. When ___4___ are used to place urgent orders, special ___5___ are often used.
   4. __________
   5. __________

5. The dealer "pad" order uses a carefully planned, numerically arranged pad of order blanks furnished by the ___6___ and designed to facilitate both ___7___ and ___8___.
   6. __________
   7. __________
   8. __________

6. Where large quantities are involved, care must be taken to maintain a(n) ___9___ stock.
   9. __________

7. Accurate ___10___ figures make ordering simpler.
   10. __________

8. There are three common types of discounts: ___11___, ___12___, and ___13___ ___14___.
   11. __________
   12. __________
   13. __________
   14. __________

9. A(n) ___15___ ___16___ may introduce the buyer to new products and explain their qualities at first hand.
   15. __________
   16. __________

10. Buyers sometimes limit ___17___ calls to a specified time.
   17. __________

Test

Read each statement and decide whether it is true or false. Circle T if the statement is true; circle F if the statement is false.

1.	A regular monthly order for stock replacement may be termed a pad order.	1. T F
2.	Intermediate orders supplement stock orders.	2. T F
3.	Any order not placed on the regular date is treated as an emergency order.	3. T F
4.	Local buy-outs enjoy larger discounts than emergency orders.	4. T F
5.	Quantities ordered are governed by guide figures.	5. T F
6.	Use of guide figures often results in overstocks.	6. T F
7.	The signature of any employee on an order will be accepted by the vendor.	7. T F
8.	A commission merchant is not a vendor.	8. T F
9.	Retail prices are always the same as list prices.	9. T F
10.	Extra dating applies to a discount extended for a longer time than usual.	10. T F

unit E • Counter Sales

TOPIC 1--PARTS TERMINOLOGY

This topic, "Parts Terminology," is planned to help you find answers to the following questions:

- How are auto parts named?
- How can the thousands of names be learned?
- Is there any system to auto parts names?
- What is a spiral bevel axle gear?

It would be an impossible task for an apprentice auto parts man to memorize the name, parts number, and bin location of each of the several thousand parts that make up the modern automobile and that are commonly carried in stock in a parts business. The terms used to describe the parts, tools, and materials for any trade or occupation are best learned from experience and contact with them during the learning period.

Learning names and locations of parts can be compared to learning names and addresses of people in a community by a newcomer. By repeatedly meeting persons and visiting their homes, he learns the names, addresses, and perhaps the telephone numbers of the people with whom he has most frequent contact. To know the occupation of a person, as well as other pertinent information about him, greatly assists the newcomer in learning the person's name.

Similarly, a parts man learns the names and locations of the items most frequently called for and soon needs to use the card index to locate parts only when an unfamiliar part is sought. To know the function of a certain part and where it fits in an automobile materially aids the man in identifying it.

A person learning auto parts work should not attempt to memorize the parts any more than one should memorize names and addresses from a city directory. He should, instead, acquire a basic knowledge of the construction and operation of the various assemblies that make up an automobile and learn the meaning of the many trade terms used in describing and designating parts.

Formation of Compound Terms

Examination of any parts catalog reveals that the names of a majority of parts consist of the name of a common mechanical device, prefixed by one or more descriptive words, plus the name of the assembly to which it belongs. For example, consider the part "generator brush holder." The word "holder" may refer to many types of devices used in an automobile, but if prefixed by the word "brush," it becomes "brush holder," of which there are only two kinds on the automobile. The word "generator," denoting the assembly to which it belongs, completely differentiates that part from all others. It is interesting to note that some of the smallest parts of an automobile have, under this system, the longest names. Other examples of names of parts are given below:

	Assembly	Descriptive Word	Mechanical Device
1.	Carburetor	pump	jet
2.	Pitman arm	shaft	bushing
3.	Propeller shaft	coupling	pin
4.	Front wheel	inner	bearing

Procedure for Learning Nomenclature

First, the parts man must become familiar with the various assemblies and their functions. In order to understand the meaning of the term "assembly," the apprentice should know the following definitions, which most automobile manufacturers use:

A part is usually a single piece of material such as a casting, shaft, bolt, or gear. However, some "parts" are composed of more than one piece, such as a roller bearing made up of rollers and races. A part may be thought of as the smallest purchasable item that goes into an automobile.

An assembly is made up of two or more parts that perform a single function. For example, the carburetor is composed of a housing, valves, jets, and floats; it serves only one purpose--supplying the proper mixture of gas and air to the cylinders.

A group, or system, usually consists of two or more assemblies closely associated and dependent upon each other. For example, the fuel group is composed of such assemblies as the carburetor, fuel pump, fuel gauge, and fuel tank. If the apprentice parts man is unfamiliar with the overall construction and operation of each assembly of an automobile, he should make an immediate effort to learn them.

Next, the parts man should be sure he understands the meaning of the common, everyday mechanical terms that are used in naming parts. Although he probably knows the majority of them, such as lever, wheel, crank, gear, and shaft, he will have more difficulty in properly identifying a transmission, pinion, or shim. Other terms that are only vaguely familiar to the layman--trunnion, dowel, grommet, diaphragm, and the like--should be learned.

Name Group Classifications

The common mechanical terms can be divided into several categories.

1. First, there are those whose meanings are not necessarily apparent in the names themselves, but which are known, or must be learned, by every mechanic. Their meaning is practically the same whether they apply to automobiles, ships, radios, watches, or buildings. Examples of such terms are:

axle
baffle
bearing
bolt
boss
bracket
bushing
cam
chassis
clevis
clutch
crank
dowel
ferrule
flange
frame
gasket
gauge
gear
grommet
hub
jet
journal
lever
manifold
nozzle
nut
panel
pawl
pinion
piston
plate
plug
pulley
rod
socket
spindle
spline
spring
sprocket
strap
stud
throttle
trunnion
universal
valve
washer

2. Next is the group of mechanical devices that are named according to the function they perform. Such terms are usually taken from a verb; some are named below:

balancer
bleeder
brace
bypass
carrier
check
choke
clamp
connection
contact
coupling
cover
deflector
distributor
driver
fastener
filter
float
guard
guide
hanger
idler
impeller
keeper
muffler
pilot
plunger
regulator
retainer
rocker
roller
rotor
seal
spacer
support

3. Perhaps the most interesting category is that relating to shape. Man has always been inclined to name new or unfamiliar objects after some known objects that they resemble. Examples of this group are:

arm
ball
band
bar
barrel
belt
block
bowl
brush
butterfly
cap
case
collar
column
coil
core
disc
drum
elbow
foot
fork
head
hood
horn
housing
jacket
key
knuckle
leaf
neck
needle
nipple
pan
pin
pipe
ring
shell
shoe
skirt
sleeve
spider
stem
tee
tip
U-bolt
V-belt
worm
yoke

4. Another category into which the naming of trade terms falls is that of technical terms, usually of Latin derivation. This is perhaps the most difficult group to learn.

   armature
   carburetor
   commutator
   helical gear
   hypoid gear
   solenoid
   synchronizer
   thermostat
   venturi

5. The last category consists of proper names, usually the name of the inventor or patent holder, such as:

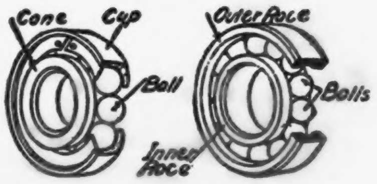
   Alemite
   Bendix drive
   Hotchkiss tube
   Parker screw
   Phillips screw
   Pitman arm

All of the terms listed in the first four groups above can be found in the dictionary; those with which the apprentice is unfamiliar should be looked up and their meanings written down for future study.

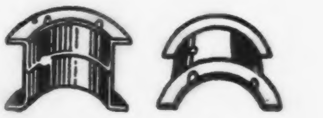
Parts Nomenclature

A brief explanation of some of the most common parts and devices with which the auto parts man comes in contact is given below. They have been arranged into groups by nature or function.

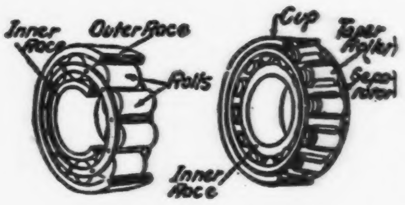
Bearing - a support in which a shaft rotates
  Babbitt - a poured bearing made of a soft alloy of tin, copper, and antimony
  Ball - a bearing in which the rotating shaft or axle is carried on a number of small steel balls that are free to turn in annular paths, called races
  Insert - a removable plain bearing
  Needle - an antifriction bearing made up of small, needlelike rollers. The needles are laid one against the other until the shaft has been completely surrounded. The shaft rests and turns in the nest of rollers thus provided.



Ball bearing



Babbitt bearing

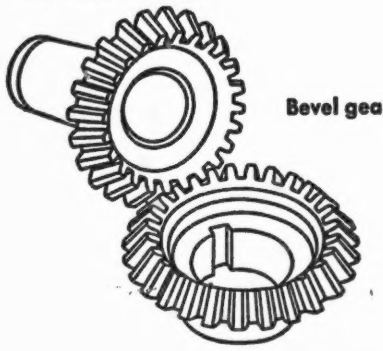


Roller bearing

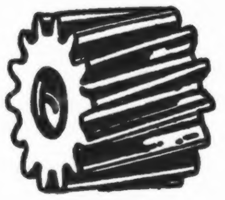
  Radial - a bearing designed to carry loads from a direction at right angles to the axis of the shaft
  Roller - a bearing in which the journal or shaft rests upon and is surrounded by hardened steel rollers that revolve in a channel or race surrounding the shaft

- Sleeve (bushing) - a removable cylindrical lining of low-friction metal, used as a bearing for a shaft or similar part
- Thrust - a bearing designed to support loads or resist pressure parallel to the shaft

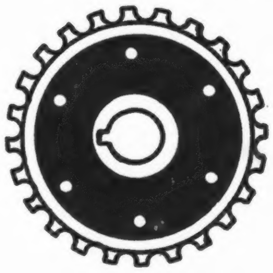
- Gasket - a thin sheet of packing material placed between two metallic surfaces to seal against liquid or gas leaks
  - Asbestos and wire - a joint-sealing device made to withstand intense heat without injuring its sealing abilities
  - Asbestos-lined - a joint-sealing device made from a combination of copper and asbestos or of brass and asbestos sheets; usually used for cylinder head gaskets
  - Cork - a sealing device made from cork
  - Fiber - a gasket made of specially prepared fiber material which may be purchased in large sheets for making up many types of gaskets on the job
  - Paper - a gasket made of a stiff composition material, used as a sealing device for special joints
- Gear - a wheel with teeth cut into its rim, designed to mesh with and drive another gear
  - Bevel - a gear with teeth cut in the surface of a conical face
  - Helical - a gear with teeth cut in the cylindrical surface but not parallel to its axis



Bevel gear

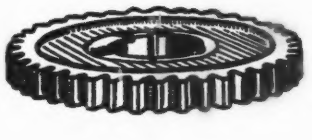


Helical gear

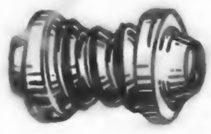


Sprocket gear

  - Hypoid - a spiral bevel gear with curved teeth
  - Internal - a gear whose teeth project inward toward the center from the circumference of the gear wheel
  - Miter - a bevel gear of 45° angle
  - Spiral - a gear with curved teeth radiating spirally from its axis
  - Sprocket - a wheel with teeth around the circumference so shaped that the teeth fit into the links of a chain that drives or is driven by the sprockets
  - Spur - a gear with teeth cut in a cylindrical surface parallel to its axis
  - Worm - a helical gear designed to transmit motion at right angles to its axis



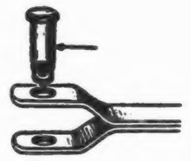
Spur gear



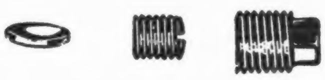
Worm gear

  - Worm wheel - the mating gear to the worm gear

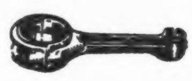
- Joint - a device for connecting parts so that power or motion can be transmitted from one to another
  - Ball and socket - a joint in which a ball is placed in a socket recessed to fit it, permitting free motion in any direction, within design limits
  - Clevis - a fork on the end of a rod
  - Toggle - a joint permitting to-and-fro motion only
  - Universal - a flexible coupling for transmitting power between shafts set at an angle to one another
- Keeper - a device for keeping parts in their proper location
  - Internal - an internal keeper usually expands into a recess in the inner circumference of a hole
  - External - an external keeper contracts or slides into a slot in the circumference of a shaft
- Key - a semicircular or oblong piece of metal used to secure a member to a shaft
  - Baldwin - a key with an oblong section
  - Spline - a series of ribs that have been machined on the shaft and on to which fits another part having mating slots machined in it
  - Woodruff - a key with a semicircular section
- Pin - a device designed to hold parts together
  - Clevis - a pin that passes through the ends of a clevis and through an eye
  - Cotter - a split metal pin designed to pass through a hole in a bolt and a slot in its nut to prevent the nut from turning
  - Straight - a cylindrical metal pin used for fastening two parts together
  - Taper - a conically shaped metal pin, usually tapering 1/4 inch per foot
- Plug - a device for sealing or closing a hole
  - Drive-in or press-in - a plug that is slightly larger than the hole it is to fit and that must be pressed or driven into place
  - Expansion - a round piece of metal with a slightly curved surface. As the surface is pushed in, the circumference expands.
  - Screw (straight and taper) - a solid piece of metal, such as a pipe plug, with threads so it can be screwed into a hole to close or seal it



Clevis and pin



Plugs



Connecting rod

- Retainer - a seal that prevents the escape of oil or grease around a shaft. Retainers are made of felt, leather, or metal with felt.
- Rod - a device for transmitting motion
  - Connecting - a rod that transmits motion in two directions
  - Push - a rod that transmits motion in one direction only
  - Torque - a rod designed to hold parts in alignment
- Shaft - a rod by which power is transmitted

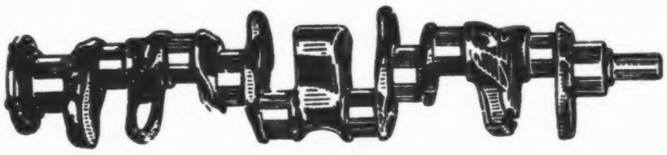
Cam - one or more cams mounted on a shaft for the purpose of changing rotary motion into reciprocating motion

Crank - an offset shaft for the purpose of changing reciprocating motion into rotary motion, or vice versa

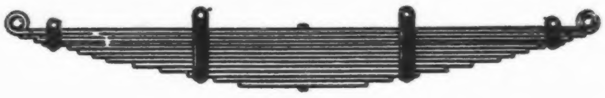
Keyed - a shaft containing a keyway

Pinned - a shaft containing a straight or tapered hole to receive a pin

Spline - a shaft on which splines have been cut



Crankshaft



Leaf spring

Spring - metal that is so shaped and of such resiliency as to bend under strain and return to its original position after the bending force is removed; a mechanical device of many forms, used to absorb shock and produce tension

- Flat - a spring having an oblong cross section
- Leaf - a series of varying lengths of flat springs placed upon each other and held together by means of metal clips
- Coil - usually formed of helically wound wire designed to resist either compression or tension

Valve - a device for controlling the flow of liquids or gases

- Ball or check - an automatic valve in the form of a steel ball on a seat, that prevents fluids or gases from flowing through a line
- Butterfly - a valve inserted in a pipe, usually circular and nearly the same diameter as the pipe, designed to turn upon a spindle through its diameter so as to control the flow of gas or liquid
- Needle - a valve with a conical seat
- Poppet - a disc or drop valve that seats itself by means of a spring or by gravity and is opened by cams or by suction

UNIT E--COUNTER SALES

TOPIC 1--PARTS TERMINOLOGY - Study Guide and Test

Study Guide

After you have studied the material in the workbook, complete the exercises as follows: (1) select the word that belongs in each numbered space in an exercise; and (2) write the word at the right in the space that has the same number as the space in the exercise.

1. A(n) __1__ is usually a single piece of material such as a casting, shaft, bolt, or gear. — 1. ________

2. A(n) __2__ is composed of two or more parts that perform a single function. — 2. ________

3. A(n) __3__, or __4__, usually consists of two or more assemblies closely associated and interdependent. — 3. ________ 4. ________

4. Some mechanical devices such as balancers and distributors are named according to the __5__ they perform. — 5. ________

5. Parts such as butterflies and spiders are named according to __6__. — 6. ________

6. Phillips and Hotchkiss are proper names of the __7__. — 7. ________

7. A(n) __8__ is a support in which a shaft rotates. — 8. ________

8. A spiral bevel gear with curved teeth is called a(n) __9__ gear. — 9. ________

9. A worm is a(n) __10__ gear designed to transmit motion perpendicular to its axis. — 10. ________

10. A(n) __11__ is a flexible coupling for transmitting power between shafts set at a(n) __12__ to one another. — 11. ________ 12. ________

11. A(n) __13__ rod transmits motion in two directions. — 13. ________

12. An offset in a shaft for the purpose of changing reciprocating motion into rotary motion is called a(n) __14__. — 14. ________

13. A spring is a mechanical device of many forms used to ___ 15 ___ shock or produce ___ 16 ___.

14. A valve is a device for ___ 17 ___ the ___ 18 ___ of liquids and gases.

15. A poppet is a disc or drop valve that seats itself by means of a(n) ___ 19 ___ or by ___ 20 ___.

15. ________
16. ________
17. ________
18. ________
19. ________
20. ________

Test

Read each statement and decide whether it is true or false. Circle T if the statement is true; circle F if the statement is false.

1. Names of auto parts can be learned only from experience. — 1. T F
2. An auto part may be one piece or several. — 2. T F
3. An assembly may be one part or several. — 3. T F
4. The fuel group includes the carburetor. — 4. T F
5. A grommet is a bushing. — 5. T F
6. Many auto part names derive from functional verbs. — 6. T F
7. A venturi is a tube constricted at the ends. — 7. T F
8. Alimony is an ingredient of babbitt metal. — 8. T F
9. A roller bearing rolls. — 9. T F
10. Spiral bevel gears all have curved teeth. — 10. T F
11. Miter gears have a 45° bevel. — 11. T F
12. A Baldwin key is semicircular in section. — 12. T F

UNIT E--COUNTER SALES

TOPIC 2--DIVISIONS OF COUNTER WORK

This topic, "Divisions of Counter Work," is planned to help you find answers to the following questions:

- How many ways can parts be paid for?
- What are open-account purchases?
- How can a parts man estimate an overhaul job?
- What are the problems of warranties?
- Who ultimately bears the cost of defective parts?

From the standpoint of payment received, auto parts counter sales are divided into the three conventional categories: cash, C.O.D., and charge. Since a substantial part of the counter man's work day is spent in writing invoices, all of which specify methods of payment, these methods should be clear in his mind.

Payment for Parts

There are two general types of cash sales: the retail cash sale and the dealer cash sale. The highest profits are made in retail cash sales, since they are on a list price basis, without discount. Dealer cash sales are also desirable; they avoid extra bookkeeping procedures and provide available cash funds with which the company can pay manufacturers' and suppliers' bills promptly, thus receiving any added discounts offered for prompt payment. Dealer sales involve discounts from list prices.

On cash sales, parts are often paid for by check. The counterman who accepts a check should always look to see if a check is made out properly, showing the date, company name, correct amount, and proper signature. If the customer is a stranger, some reliable identification should be required. The counterman should initial the check and, if possible, put the sales slip number on the check for reference in case the check is returned for any reason.

Collect on delivery (C.O.D.) shipments are made for two reasons. Some customers like to pay for the merchandise they order at the time it is delivered. Their credit may be very good, but by paying for the merchandise on delivery, they have no unpaid bills at the end of the month. Other customers are billed on a C.O.D. basis for another reason--they have low credit ratings and are considered poor risks as charge accounts. Some may take so long to pay their bills that the seller actually loses money. A customer who consistently proves to be a poor credit risk should be dealt with only on a cash or C.O.D. basis.

A large percent of sales are on an open-account, or charge, basis. Instead of paying for merchandise or service as it is received, customers who use this type of account pay the accumulated charges at the end of each month. This is a genuine convenience to the customer, and he tends to confine all his purchases to the place where he has an open account. Open-account purchases by dealers are usually considered the same as cash purchases, in that the same discounts on parts and services are usually applied. The convenience of a charge account should be offered only to those dealers or companies that are good credit risks, since no interest or finance charge is added to their bill and the parts dealer does not receive interest for the use of the money involved.

More and more customers are buying on time payment plans. A time payment may be handled as a loan through a bank or handled by the seller. Such a plan is usually set up only for a large sale, such as expensive equipment or a major overhaul. Even if a customer is not a good enough credit risk for an open account, he can be extended a time payment plan, since security is required for the money involved. On an account of this type a finance charge is made or interest is charged on the unpaid balance, or both.

Sales Slips and Cash Registers

Writing up sales slips is an important part of the automotive parts salesman's job. Since most of the items sold are identified by part number, the importance of writing numbers, descriptions, and other information correctly and legibly cannot be overstressed. Customers may have names and addresses that are similar; these also must be written clearly so that one customer will not be charged for something another one received.

In some companies the use of the cash register is limited to one person in order to expedite sales and free the countermen for other work. The chance for error is much smaller when only one trained person is using the register. However, other companies use a register with two or more drawers, each salesperson using a separate drawer and separate record of transactions. Responsibility for mistakes is thus determinable. The register prints a total record of all sales and disbursements, as well as the separate record for each drawer; thus a complete sales record is furnished to the company.

Pricing and Estimating

Since prices are subject to change without notice, the counterman must keep up to date on all incoming price changes. Some manufacturers supply price pages revised as necessary, showing list prices and dealer's net after discount. Other manufacturers do not furnish price page revisions for the items they sell, but price the invoice instead. Under these circumstances, the company bookkeeper or price clerk should furnish the countermen with priced pages for their catalogs. Still other companies or suppliers use a list price page with the discount shown as a percentage of the list price. Some items, such as tools and equipment, are listed at net price only. Prices and discounts should be checked periodically against manufacturers' invoices and the latest price information.

The question often arises whether a customer is eligible to receive discounts, particularly when it is uncertain what type of service the customer renders. The following are types of customers who commonly are granted discounts:

- Garage operators who maintain an established business devoted to the servicing and repairing of automobiles and trucks
- New car and used car dealers who maintain an established business and who employ personnel for servicing and repairing automobiles and trucks
- Paint and body shops that maintain an establishment for repairing and painting automobiles and trucks
- Fleet operators who have five or more cars, trucks, or buses and who employ personnel for the repair of these units
- Service stations that purchase only those parts and accessories they are equipped to install
- Factories or manufacturers who use the parts for production or maintenance of equipment
- Parts distributors who resell to other dealers or garages

The counterman is occasionally asked to estimate the price of a complete or partial overhaul of some major assembly. This estimate must include the price of the parts used plus the "labor" or shop charge. The shop charge comprises direct labor and overhead. Most automobile manufacturers publish flat-rate manuals showing the estimated or average time required to repair or replace many common items. By referring to such a manual, it is possible to make up a labor schedule for jobs that come to the parts man's attention; this schedule should be included when he makes an estimate.

Returned Merchandise

The customer's privilege of returning merchandise, either new or in warranty, is an expensive but necessary problem for most companies. The return of any article requires time spent in handling the complaint, tracing the original sale, recording the transaction, and putting the item back in stock or returning it to the supplier. Additional time and effort may have to be spent in soothing an angry or disappointed customer. Nevertheless, the return privilege is an important part of maintaining customer goodwill. Even when the utmost care has been taken to avoid errors, there will be cases when a return is entirely justified. Many companies have adopted a policy of accepting all returns without question. In cases where the merchandise is defective, the manufacturer or supplier will usually replace the defective part or issue credit for it.

Returned merchandise should be inspected carefully. Items that are defective should be sent back to the source for replacement or credit; this will involve filling out applicable forms. When a mistake has been made in ordering or delivering, the customer may exchange the merchandise for the correct items, or a credit memo or cash refund may be issued. When he is returning merchandise, the customer is expected to present his original sales slip, since the price of the article may have changed since the purchase date. Many companies will not accept new merchandise for refund after thirty days.

Refund slips and credit memos should list the customer's name, the part numbers and description of material returned, the date and number of the original sales slip, and the amount to be credited or refunded to the customer.

The warranty on automobile and truck replacement parts varies, but is usually based on a 90-day or 4,000-mile period, whichever occurs first. Any defects in material or workmanship that appear within the warranty period will be cause for free replacement by the seller. However, some make a labor charge for any time spent in removing and replacing the defective part. If a part or assembly covered by a warranty has obviously been misused by the customer, it is not unreasonable to ask the customer to share the cost of replacement. Every effort should be made by the employee to convince the customer of the justification of such a charge. Prompt and fair handling of all warranty adjustments is necessary if customer confidence is to be maintained.

Auto parts personnel must be aware of the procedures for handling defective replacement parts, since detailed information is often required before credit can be obtained from the manufacturer. Claims for defective merchandise often must be submitted on a very detailed form.

UNIT E--COUNTER SALES

TOPIC 2--DIVISIONS OF COUNTER WORK - Study Guide and Test

Study Guide

After you have studied the material in the workbook, complete the exercises as follows: (1) select the word that belongs in each numbered space in an exercise; and (2) write the word at the right in the space that has the same number as the space in the exercise.

1. Three conventional methods of payment for merchandise are: ____1____, ____2____, and ____3____.

   1. ____________
   2. ____________
   3. ____________

2. Dealer sales involve ____4____.

   4. ____________

3. Charge acounts should be offered only to companies that are good ____5____ risks, since no ____6____ or finance charge is added.

   5. ____________
   6. ____________

4. Many customers buy on a(n) ____7____ ____8____ plan.

   7. ____________
   8. ____________

5. Eligibility for ____9____ depends to a degree upon occupation.

   9. ____________

6. Most auto manufacturers publish ____10____ manuals showing the ____11____ time involved in the repair or replacement of auto parts.

   10. ____________
   11. ____________

7. The customer's privilege of ____12____ merchandise is an expensive but ____13____ problem for most companies.

   12. ____________
   13. ____________

8. When a part is defective, the manufacturer will usually ____14____ the defective part or issue a(n) ____15____ for it.

   14. ____________
   15. ____________

9. When returning merchandise, the customer should always present his ____16____ ____17____ ____18____.

   16. ____________
   17. ____________
   18. ____________

10. If a part or an assembly covered under warranty has obviously been ____19____, it is not unreasonable to ask the customer to share the cost of ____20____.

    19. ____________
    20. ____________

Test

Read each statement and decide whether it is true or false. Circle T if the statement is true; circle F if the statement is false.

1. Retail cash sales generally provide the highest profits. — 1. T F
2. Invoices specify prices but not methods of payment. — 2. T F
3. Shipments may be made C.O.D. to either good or bad credit risks. — 3. T F
4. An open account is evidence of good credit. — 4. T F
5. A time payment plan may bear finance charges, interest, or both. — 5. T F
6. Discounts and finance charges never apply to the same transaction. — 6. T F
7. Most cash registers in current use print a record of transactions. — 7. T F
8. Thirty days' notice must be given before manufacturers' list prices are raised. — 8. T F
9. The shop charge is strictly a labor charge. — 9. T F
10. Independent shops are required to follow the flat-rate manual for any job. — 10. T F
11. The manufacturer usually bears the cost of defective merchandise. — 11. T F
12. The customer's privilege of returning unused merchandise is granted to foster good will. — 12. T F

UNIT E--COUNTER SALES

TOPIC 3--WHAT IS A CUSTOMER?

This topic, "What is a Customer?" is planned to help you find answers to the following questions:

- How should a parts counterman treat outside customers?
- How can a new customer be made a steady customer?
- What facts will help a parts man win the majority of his arguments with customers?
- Each customer needs something from the dealer, but what does the dealer need from each customer?

> **What is a Customer?**
>
> **A customer is the most important person ever in this office . . . in person or by mail.**
>
> **A customer is not dependent on us . . . we are dependent on him.**
>
> **A customer is not an interruption of our work . . . he is the purpose of it. We are not doing him a favor by serving him . . . he is doing us a favor by giving us the opportunity to do so.**
>
> **A customer is not an outsider to our business . . . he is a part of it.**
>
> **A customer is not a cold statistic . . . he is a flesh-and-blood human being with feelings and emotions like your own and with biases and prejudices.**
>
> **A customer is not someone to argue or match wits with. Nobody ever won an argument with a customer.**
>
> **A customer is a person who brings us his wants. It is our job to handle them profitably to him and to ourselves.**
>
> **Author Unknown**

"A customer is the most important person ever in your establishment; in person, by phone , or by mail." All of the combined activities of the parts industry are aimed at one final act--the successful sale. Sales can only be to customers; therefore, customers are most important. It is a simple rule, but one that is frequently forgotten. Service to the customer must take precedence over every other activity in the store. This does not mean that other activities are not important. Merchandise must be received, bins stocked, and inventories kept. But these activities are purposeful only if profitable sales are being made. The customer is number one.

"A customer is not dependent on us, we are dependent on him." Every commercial organization depends on customer profits for survival. The competition in today's market emphasizes this dependence. On rare occasions a customer may be dependent, temporarily, on one store for a particular item. But even this rare occasion does not alter the fundamental fact that the company depends on the profit from that sale for its existence. Even if an organization had a monopoly on certain parts, the store would still depend on the customers who bought them. There is no escaping the fact that each establishment is totally dependent upon its customers, and the building and maintenance of a clientele is the direct responsibility of all the employees who greet and serve them.

"A customer is not an interruption of our work; he is the purpose of it." All other activities must somehow be subordinated to the fact that customers come first! Putting away stock is important, but it must be done between customers. Prolonged or personal telephone conversations must be terminated when customers are waiting. Stock orders, paper work, bin changing, display arranging--anything that can logically be put aside must be deferred until the customer's needs are met.

"A customer is not an outsider to our business; he is a part of it." But one wouldn't believe it to see the way many customers at a parts counter are treated. The parts counter frequently becomes a barrier across which only merchandise and payment can pass. Conversations are usually limited to cold facts and bare statistics; there is no sense of a desire to help or of a need to be filled. There is no personal involvement in the transaction by either party, and this is all the more tragic because human relations, regardless of the environment or setting, are the most rewarding events of life. A customer cannot be an outsider to your business; he is a participant in it! He can be an outsider only if the owner or the customer chooses to make it so. He should be made to feel he is a very welcome insider!

"A customer is not a cold statistic--he is a flesh-and-blood human being with feelings and emotions like your own and with biases and prejudices." As such he must be treated with all the care and consideration that the seller would expect to be shown should he suddenly find the positions reversed. One of the quickest ways to prevent development of a friendly sales relationship is a superior attitude on the part of the salesman. He should indeed know his job and know it well--in fact, competence is stressed throughout this course. But a customer who has no training in the field cannot be expected to meet the trained salesman on even terms. Many customers do not even know automotive nomenclature. All a customer wants is an honest and competent solution to his needs, presented in a manner that will not arouse prejudice or bias and that will not make him feel inferior in the process. That kind of an approach sounds easy. In reality it is not; it must be cultivated.

"A customer is not someone to argue or match wits with. Nobody ever won an argument with a customer." Only rarely does a customer come into a store to argue, and that is most often when he has a complaint to register. If his complaint is legitimate, then it should be handled by an understanding person who is trying to help. But most customers come to buy something or to seek information. There is no justification for quarreling in such a situation; either he should be sold what he needs or helped with his problem. Quarreling and matching wits are egocentric devices which have no place in a simple sales transaction. If a customer wants to quarrel or act superior, the salesman should not join him in it. Tolerance and understanding are keys to good salesmanship.

"A customer is someone who brings us his wants." These wants may be physical needs or problems to be solved, but whatever they are, he brings them to be filled. He does so with a certain legitimate assumption--that the company has, or can supply, the answer to his wants.

Herein, of course, lies the essence of successful business relations--a customer with a need and a company with the resources to fill that need, profitably for both parties. But the successful outcome, a satisfied need, is subject to many conditions, some of which have been mentioned above. Others will be discussed in a later topic.

UNIT E--COUNTER SALES

TOPIC 3--WHAT IS A CUSTOMER? - Study Guide and Test

Study Guide

After you have studied the material in the workbook, complete the exercises as follows: (1) select the word that belongs in each numbered space in an exercise; and (2) write the word at the right in the space that has the same number as the space in the exercise.

1. The ___ 1 ___ is the most important person in an auto parts store.
   1. ____________

2. All of the combined activities of the parts industry are aimed at one final act, the ___ 2 ___ ___ 3 ___.
   2. ____________
   3. ____________

3. The customer is not ___ 4 ___ on the store.
   4. ____________

4. To build and maintain a satisfied customer clientele is the direct ___ 5 ___ of the ___ 6 ___ who greet and serve them.
   5. ____________
   6. ____________

5. A customer is not a(n) ___ 7 ___ of the work; he is the ___ 8 ___ of it.
   7. ____________
   8. ____________

6. The parts counter should never become a barrier across which only ___ 9 ___ and ___ 10 ___ can pass.
   9. ____________
   10. ____________

7. A customer cannot be an outsider to your business; he is a(n) ___ 11 ___ in it!
   11. ____________

8. A customer is not a cold ___ 12 ___; he is a flesh-and-blood human being.
   12. ____________

9. Only rarely does a customer come into a store to ___ 13 ___, and that is when he has a ___ 14 ___ to register.
   13. ____________
   14. ____________

10. ___ 15 ___ and matching ___ 16 ___ have no place in a simple sales transaction.
    15. ____________
    16. ____________

11. A customer is someone who brings you his ___ 17 ___.
    17. ____________

12. The essence of successful business relations lies in a(n) ___ 18 ___ with a need and a company with the ___ 19 ___ to fill that need, ___ 20 ___ for both parties.
    18. ____________
    19. ____________
    20. ____________

Test

Read each statement and decide whether it is true or false. Circle T if the statement is true; circle F if the statement is false.

1. The target of the auto parts industry is the customer. 1. T F

2. Service to the customer should take precedence over inventory. 2. T F

3. Competition emphasizes the customer's dependence. 3. T F

4. A monopoly is no good without sales. 4. T F

5. All phone conversations should be cut short when customers are waiting at the parts counter. 5. T F

6. A prejudiced customer is an asset to a store. 6. T F

7. Only the owner should be allowed to argue with a customer. 7. T F

8. Every customer assumes that the store he enters can fulfill his need. 8. T F

9. There should be no personal involvement in a parts sale. 9. T F

10. Every transaction should end profitably for all parties to it. 10. T F

UNIT E--COUNTER SALES

TOPIC 4--HOW TO SELL

This topic, "How to Sell," is planned to help you find answers to the following questions:

- What are the traits of a good salesman?
- What is the most effective sales approach?
- What must the salesman get from the customer?
- How far should the salesman go to push related sales?

A popular myth has grown up that a smooth fast talker, someone with a "gift of gab," should become a salesman. The basis for such a myth is partially true. Many people, as customers, are susceptible to a high-pressure, hard-sell appeal, and most salesmen of this character enjoy some financial success.

This is not the whole picture of sales technique, however, for only a certain number of people succumb to the "big pitch," and many of them regret later that they were "sweet-talked" into a sale. This is not a good foundation upon which to build reliable repeat sales, and the company which tries to do so often finds itself unstably established.

Steady, substantial repeat sales are the backbone of most businesses, and such sales are built on more than talk. Sincerity and willingness to help on the part of the salesperson are crucial to lasting sales. Fairness, honesty, and a willingness on the part of the company to back its merchandise must be evident if customer confidence is to be gained and kept.

In today's complex and competitive automotive world a few pennies of profit must often be sacrificed today for the larger profit of tomorrow. Catering to the needs and wants of the customer, as perhaps he has never been catered to before, is called for. Signs often link the words "Sales and Service." In salesmanship, the two words become almost synonymous.

The Sales Approach

In first approaching a customer, the salesman should be interested, honest, and sincere. He should remember that the customer is a man with a want or a need, a man who assumes that this particular company is in a position to satisfy that need. If this were not so, it is not likely that the customer would be there in the first place.

A casual approach does not mean one that borders on indifference. It simply means that one does not swoop down on a customer with platitudes and "pre-recorded" sales introductions. This kind of approach, although it may at first seem genuine, takes on a note of insincerity after repeated performances, and discerning customers are apt to be offended by it. It would be better to vary the opening statement from time to time, keeping it simple and sincere, than risk the danger of falling into a verbal rut.

Honesty in approaching a customer is more of an attitude than a verbal statement. Somehow the salesman's attitude must convey to the customer the salesman's genuine desire to be fair and helpful. The attitude must be an expression of truth; if one does not feel it, he cannot express it. The ability to project honesty is a rare quality, one rapidly disappearing beneath a veneer of sophisticated salesmanship. But real honesty in efforts to help the customer will show itself, and will prove one of the most powerful tools the salesman, auto parts or other, can possess.

Sincerity is like honesty in that it is expressed in the attitude. The salesperson does not do the customer a favor by waiting upon him. The salesman needs to have genuine desire to help, to serve. Successful sales are the result of a sincere effort to help the customer with his various problems. The customer can sense whether a real effort is being made to meet his needs. His repeat business may depend upon his opinion as to the element of sincerity in the customer-salesman relationship.

Meeting the Customer

The initial customer-salesman meeting forms the most important relationship to develop in the auto parts store. From this encounter will or will not develop the successful sale, which hinges upon the customer's original need, the company's ability to physically meet that need, and the salesperson's handling of the situation. The original encounter between the auto parts salesman and his customer deserves serious attention.

Except for the presence of a few generalized accessories, auto parts form a highly specialized body of material that demands specific knowledge for proper identification. The auto parts salesman must be prepared, during the original encounter with the customer, to determine the exact nature of the part or parts involved, the exact model for which they are intended, and the presence on the vehicle of certain options that affect the selection of the correct parts. It is the existence of so many models and options which complicates the parts salesman's job so tremendously, to the extent that frequently even a mechanic or the car owner cannot give the parts man the correct information.

The selection of even a correct fan belt can lead to a detailed interrogation, and the situation may be much more complicated when certain other parts are needed, for example, parts for an intricate automatic transmission. Questioning the customer is necessary for the proper selection of most modern parts and can be a source of frustration for both customer and salesman.

The ability to make such interrogations skillfully results from long and broad experience in the field. Knowledge of each item is paramount, and the parts man must constantly remind himself that even though the procedure is often boring and complex, it is a necessary part of his vocation. Failure to elicit enough information may result in the wrong part being sold. An antagonistic approach will only frustrate and complicate the whole procedure. Short cuts should be developed to gain the needed information as quickly as possible. One shortcut is to learn the distinctive differences that will identify correctly the model and the needed part. If it is feasible to bring in the old part for identification, replacement is usually simpler.

Sales Techniques

Sales techniques in the automotive parts field include all of those things mentioned so far in this topic--honesty, sincerity, competence, patience--and more. Customers frequently do not know exactly what they want or need, and certainly for the most part they are unaware of related needs. For example, it is never a good idea to sell ignition points without suggesting a condenser (and vice versa). If the customer asks the point gap setting on a particular model, he should be told, even though it must be looked up, and then the suggestion made that he lubricate the distributor cam lobe lightly with a suitable lubricant. Such constructive suggestions can make steady customers of casual ones.

Suggesting related items for purchase (e. g., clamps with hose, cement with gaskets, or paint supplies with paint) is an important part of the salesman's repertory. Not only are such suggestions legitimate but they are often appreciated, and they bring considerable added revenue to the store. Such related items should not be unduly urged upon the customer but should be suggested at a strategic time, pointing out the potential need for the utility of the related item(s).

The auto parts salesman must be ready to discuss any item in his store with clarity and competence, setting forth its virtues and comparing it, feature by feature, with other brands and models. This kind of knowledge requires a constant effort by the parts man to remain current himself by reading service bulletins, trade publications, and advertising media concerning the merchandise he sells. Nothing will kill a sale quicker than inadequate knowledge of a product being shown.

New items in stock are always a potential sales feature, and may be shown legitimately on the strength of their newness alone. New tools, gauges, instruments, accessories, and any items of improved design are particularly good subjects for sales efforts. Garagemen and mechanics are especially interested in new time-saving tools and equipment. Retail customers are often interested in new accessories and in simplified parts or replacement kits.

Closing the Sale

Closing the sale should include a courteous inquiry as to any other items needed and an appraisal as to related parts that might have been overlooked. Tips may be offered on quicker, more satisfactory, installation methods that the salesman has learned. Retail customers are apt to inquire about installation instructions, and these should be supplied quickly and courteously. If the salesman does not know, the customer should be put in touch with shop personnel who can help.

When out of a part the customer needs badly, the parts man should make an effort to locate it for him. A phone call to another store takes only a minute, and the customer will appreciate the effort. Special orders can be handled for the customer by whatever system has been established by the company.

UNIT E--COUNTER SALES

TOPIC 4--HOW TO SELL - Study Guide and Test

Study Guide

After you have studied the material in the workbook, complete the exercises as follows: (1) select the word that belongs in each numbered space in an exercise; and (2) write the word at the right in the space that has the same number as the space in the exercise.

1. Repeat __1__ are the backbone of most businesses and are built on more than __2__. 1. ________ 2. ________

2. The __3__ and willingness to __4__ on the part of the salesman are crucial to lasting sales. 3. ________ 4. ________

3. A company must be willing to back its merchandise if __5__ __6__ is to be built and maintained. 5. ________ 6. ________

4. A casual approach does not mean a(n) __7__ approach. 7. ________

5. Honesty is shown in approaching a customer more by __8__ than by __9__. 8. ________ 9. ________

6. Repeat business may depend upon the customer's opinion as to the sincerity of the __10__. 10. ________

7. Except for a few general __11__, auto parts are a highly __12__ body of material. 11. ________ 12. ________

8. The presence on the vehicle of certain __13__ will often affect the selection of correct parts. 13. ________

9. Proper selection of most current auto parts may require __14__ __15__ of the customer. 14. ________ 15. ________

10. Failure to elicit complete __16__ may result in the sale of the wrong part. 16. ________

11. Nothing will kill a sale quicker than __17__ knowledge of a product being shown. 17. ________

12. New items in stock are always a(n) __18__ sales feature. 18. ________

13. Retail customers are often interested in new ___19___ and simplified replacement ___20___.

19. ____________
20. ____________

14. Retail customers are apt to ask about ___21___ instructions.

21. ____________

Test

Read each statement and decide whether it is true or false. Circle T if the statement is true; circle F if the statement is false.

1. A glib talker is the best salesman. — 1. T F
2. Some customers can be sweet-talked into buying. — 2. T F
3. A sincere, helpful salesman builds repeat sales. — 3. T F
4. In his first approach to a difficult customer, the salesman should seem indifferent rather than avid. — 4. T F
5. The customer will be influenced by his appraisal of the salesman's mental attitude. — 5. T F
6. Specific knowledge of the customer's needs must sometimes be obtained by lengthy interrogation. — 6. T F
7. Frequently, customers do not know just what they need. — 7. T F
8. Ignition points should never be sold without suggesting a new point gap setting. — 8. T F
9. The more the salesman knows about his wares, the more wares he is likely to sell. — 9. T F
10. A customer should never be sent to a competitor's store for an item that is not in stock where he first seeks it. — 10. T F

unit F • Displays That Sell

TOPIC 1--WHY DISPLAY?

This topic, "Why Display?," is planned to help you find answers to the following questions:

- What functions are assigned to displays?
- What can display do for a new product?
- What is the chief function of a seasonal display?
- What can displays do for store appearance?

A display has been described as a silent salesman to which several functions of the vocal salesman may be assigned. Displays are aimed at ultimate sales through customer interest, but they reach the target in a variety of ways. Any display that is attractive or interesting has a potential sales appeal, and any passerby who pauses to examine a display is a potential customer.

Creating Customer Interest

Most displays are designed for direct sales appeal. Others are designed to appeal to the customer in a less direct way through an interest theme.

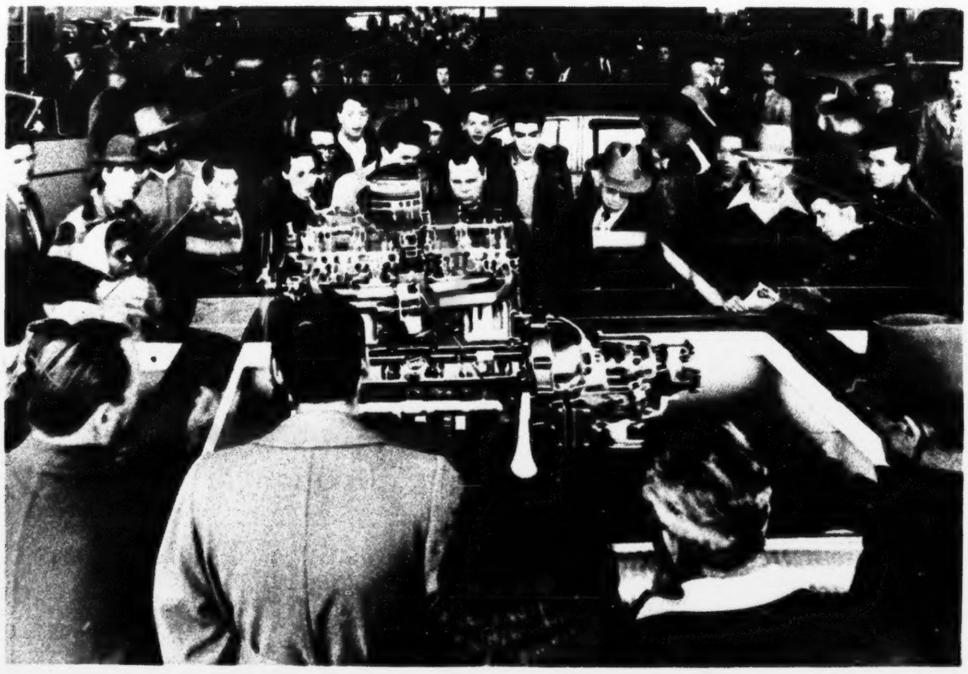
Direct sales appeal is a theme easily carried out. An item or items which lend themselves to attractive display can be set up in a multitude of ways. Accessories, tools, and equipment are especially suited for effective display, although they are by no means the only items that display well. The direct appeal display should be simple, uncluttered, attractively arranged, and prominently placed.

The interest-theme display can be just as effective as a direct appeal, but in a more subtle way. One of the most effective "interest" displays was an early "Powerglide" automatic transmission, completely disassembled, with each component identified by a name card, and with the whole transmission arranged in an "exploded" fashion in a parts room display case. The display created a great deal of interest. For retail customers it illustrated the concept and complexity of the "Powerglide" transmission (which was new on the market), and reminded them of the importance of regular transmission service. For mechanics and parts men alike, it was an excellent reference for identifying needed transmission parts and for suggesting related items.

Introducing New Products

One of the most frequent and effective uses of display is to introduce new products. The idea behind such displays is simple; it is to make the customer aware of a new and desirable product and to create within him the desire to buy it. Such displays usually follow the direct appeal method, although some items are not restricted to direct sales. Many displays carry both direct sales and interest themes, and an effective blending of both themes can be the most profitable of all.

New products especially need prominent and effective display. The qualities and claims of the new product must be set before the consumer in such a manner that he will understand its value and be persuaded to buy. New products represent some new concept or an improvement over an old concept. Effective display must exploit the newness or the improvement that the product represents. (See Fig. F-1.)



Courtesy Cochran and Celli, Oakland

Fig. F—1. An animated interest-theme display drawing a large crowd

Selling Related Items

Displays frequently sell related items. A related item is a piece of merchandise that can be logically suggested for purchase along with the article or articles requested. By the transmission display previously mentioned the repairman was frequently reminded of related parts he might need, such as gaskets, rings, seals, thrust washers, spacers, plates, lock rings, and the like. Many effective displays carry out a mechanical or seasonal theme in which a number of related parts are displayed together. Many automotive assemblies lend themselves to group display.

Related items may be connected with preventive maintenance. The small interior parts of a carburetor, mounted on a velvet-covered display board to enhance their intricate nature, will sell many a gas filter to owners whose cars are not presently equipped with adequate filtering means. If a customer can be shown that such preventive maintenance is not only desirable but economical, he will buy the product and be thankful for the suggestion.

A direct relationship exists between preventive maintenance sales and customer goodwill which is frequently overlooked. Such related sales are legitimate and practical; well-planned displays are an effective way of achieving them.

Selling Seasonal Items

Seasonal display themes emphasizing groups of items are extremely effective when properly arranged. Summer accessories, cold-weather requirements, wet-weather goods, and spring maintenance items are themes with almost limitless possibilities. These group themes can utilize all the potential that displays possess: direct sales appeal, interest groups, related sales opportunities, and preventive maintenance.

Summer accessories provide the largest single sales appeal in seasonal merchandise. During a recent year Americans rolled up a new mileage record, traveling a total of 798 billion vehicle miles! A substantial part of this mileage represents the summer vacation of the motoring public. Comfort and convenience accessories and their maintenance are a large item in the vacationing motorist's budget. Air conditioners, coolers, luggage carriers, trailers, campers, traveling and camping accessories, tires, and so on, plus the mechanical maintenance aids necessary for extended trips, are all items which can be effectively displayed and sold through a summer theme.

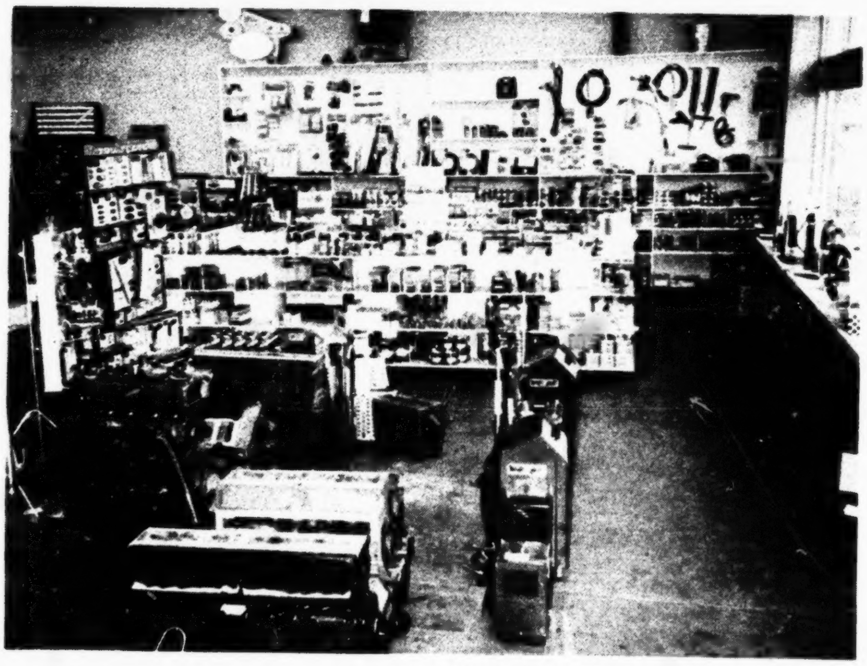
Other seasonal needs lend themselves to effective group display. The best ways to plan and arrange displays will be discussed in the next topic.

Improving Store Appearance

Automotive parts and accessories can make very attractive displays. A little imagination and ingenuity can transform an ordinary parts stockroom into an attractive parts department at small cost. Vacant corners, unused wall space, large window areas, and counter space are all potential display sites. (See Fig. F-2.)

Displays should be designed to enhance the appearance of the customer sales area. People enjoy shopping in an area that is clean and well lighted, and in which merchandise may be viewed. A waiting customer will browse if there are interest centers and attractive displays available at hand.

Displays can be planned to invite attention while generally improving the appearance of the store. Wall space can be equipped with pedestals, shelving clusters, or shadow-box arrangements. Window treatments, while dressing up the window space, should serve as "attention-getters" to invite the customer inside for potential sales. Unused corners, which tend to collect odds and ends,



Courtesy Tri-City Auto Supply, Richmond

Fig. F—2. Typical displays in a wholesale-retail auto supply store

should instead be fitted with suitable displays. Where counter space is large, counter displays will serve as interest centers while breaking up an otherwise drab architectural necessity.

Topics for Discussion

Be prepared to discuss the following topics if you are asked to do so:

1. Discuss the terms "simple," "uncluttered," "attractively posed," and "prominently placed" as they relate to displays.
2. What distinguishes a "direct sales appeal" display from an "interest theme" display?
3. Why are "group themes" important in displays?

UNIT F--DISPLAYS THAT SELL

TOPIC 1--WHY DISPLAY? - Study Guide and Test

Study Guide

After you have studied the material in the workbook, complete the exercises as follows: (1) select the word that belongs in each numbered space in an exercise; and (2) write the word at the right in the space that has the same number as the space in the exercise.

1. Displays are aimed at ultimate ______1______ through ______2______.
   1. ____________
   2. ____________

2. Most displays are designed for ______3______ sales appeal.
   3. ____________

3. Another appeal to the customer can be made in a less direct way through a(n) ______4______ ______5______.
   4. ____________
   5. ____________

4. One of the most frequent and effective uses of display is to ______6______ ______7______ products.
   6. ____________
   7. ____________

5. New products represent a new ______8______, or a(n) ______9______.
   8. ____________
   9. ____________

6. Effective display of a new product must ______10______ the newness or the improvement.
   10. ____________

7. A related item is one that can be ______11______ suggested for purchase along with the articles ______12______.
   11. ____________
   12. ____________

8. Related items may include ______13______ ______14______ items.
   13. ____________
   14. ____________

9. ______15______ accessories offer the largest single sales appeal in seasonal displays.
   15. ____________

10. An ordinary parts stockroom can become an attractive parts department through ______16______.
    16. ____________

Test

Read each statement and decide whether it is true or false. Circle T if the statement is true; circle F if the statement is false.

1. Most displays appeal to the customer indirectly. 1. T F

2. Tools and accessories are well suited to display. 2. T F

3. A complex display of an assembly may serve as a reminder that such assemblies need regular maintenance. 3. T F

4. New products can best be sold without display. 4. T F

5. Selling preventive maintenance is one way to obtain customer goodwill. 5. T F

6. A grouping of snow tires, antifreeze, windshield scrapers, lightweight oil, and wheel chains could be a very effective late autumn display. 6. T F

7. When displayed, new products usually try to make a direct appeal. 7. T F

8. When improved items are displayed, the improvements will be self-evident. 8. T F

9. Comfort and convenience accessories provide a small market compared to efficiency and safety items. 9. T F

10. Displays may prove of value not only to customers but also to shop mechanics. 10. T F

UNIT F--DISPLAYS THAT SELL

TOPIC 2--HOW TO DISPLAY

This topic, "How to Display," is planned to help you find answers to the following questions:

- What qualities of an item should be emphasized when it is placed on display?
- Can more than one quality be emphasized at one time?
- How can each different quality be stressed?
- Can more than one item be effectively displayed at the same point?
- How many different displays should be staged in the salesroom at one time?

Display Terminology

A person may do good display work without knowing just what it is that makes his work successful. Some people have an intuitive "feel" for the arrangement of materials into an attractive display. Describing display techniques, however, can be simplified by the use of certain key words. If one has the "feel" for good display, then the words will reinforce what is already known. Without experience in display work, these words can be helpful toward understanding the aims and purposes of effective display.

Functional Display

A functional display points out the usefulness of the product displayed. The desirability of the item lies in its usefulness; it may do a job better or more easily. The functional display must exploit this aspect of the product.

Aesthetic Display

Aesthetic display emphasizes the beauty of the product. Certain shapes or finishes appeal to us in a way which cannot always be described. This is an aesthetic appeal. Manufacturers spend millions of dollars in design engineering, trying to create a form or shape that has aesthetic appeal. New car styles are a prime example of this effort.

Staged Display

A staged display has a definite plan. It is not just a row of bottled polishes or chemicals, or an array of chrome. It has a plan and a theme. Staged displays are far more effective than random displays.

Symmetry of Display

Symmetry means a certain visual balance in the products displayed. Grocery clerks build pyramids of canned goods. This is a form of display symmetry, but it can be achieved in other ways. A display should not be top-heavy or lop-sided, but arranged in such a way that a feeling of balance results.

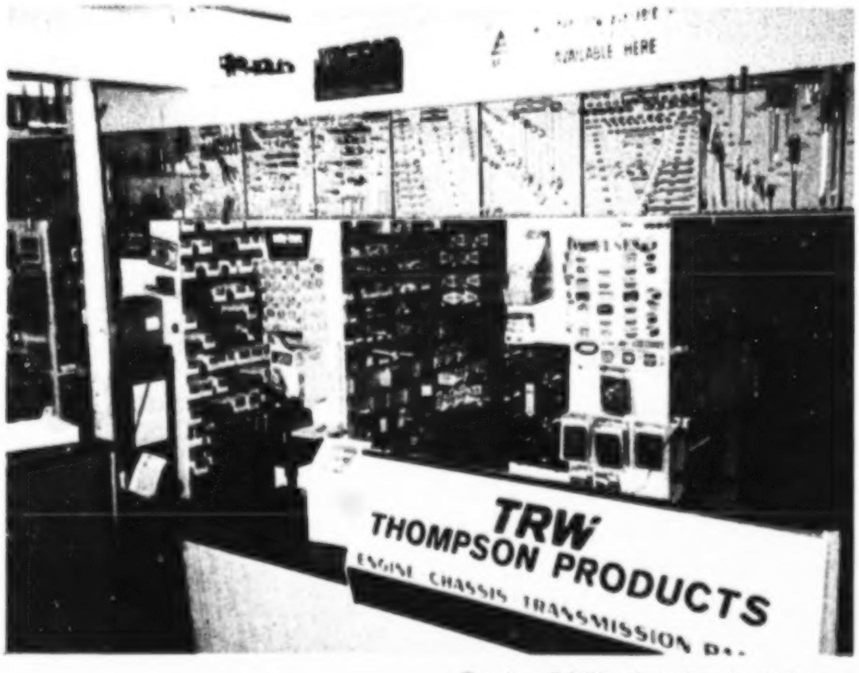
Prominence of Display

Prominence means conspicuousness or striking the eye. A displayed item should occupy a place that stands out, both in its display setting and in its general location. Visual accessibility is a key to good display.

Display Techniques

An introduction to display techniques is really an introduction to the five key expressions listed above. Three of these word concepts or display concepts--staging, symmetry, and prominence--should always be sought. The nature of the product will determine whether a functional or aesthetic theme (or both) should be stressed.

Displays must be prominent, but not offensive. It is not a good idea to clutter the counter-top with a lot of miscellaneous material, especially if work space is limited. Neither is it a good idea to clutter the customer area with so many displays as to make walking about difficult. A few well-planned and well-placed displays will do a better job of selling than many unplanned ones. (See Fig. F-3.)



Courtesy Tri-City Auto Supply, Richmond

Fig. F—3. Neatly presented behind-the-counter displays

Keep displays simple, but attractive. A single item, rather than a whole pyramid of the same item, can be just as effective if properly posed. Attention can be brought to the item by a prominent setting, appropriate surroundings, and where possible, special lighting. A chrome accessory, highly polished, mounted on a draped pedestal with special lighting, has more sales appeal than a windowful of cluttered and unposed merchandise. The same is true for most displays, whether they be on countertop or wall shelf, in display case or window case. A display should be simple, uncluttered, attractively posed, and prominently placed.

Display Appropriateness

Before a display is begun, the appeal the merchandise offers should be determined. If it is a functional appeal, a setting is designed to emphasize this functional quality. If "related" items will help to emphasize usefulness, they are arranged together. If comparison with an older--less useful--product is appropriate, the display should compare them. All signs, placards, and descriptive material should join in carrying out the functional appeal of the product. Function will be the central theme; the other rules of good display must also be followed.

Some items display best for their aesthetic appeal. Chrome wheel covers (discs) have no particular functional value, but their beauty of design is attractive. Displays which emphasize the aesthetic qualities of a product should reflect special attention given to the setting. Padded and draped pedestals and back drops are especially attractive. Rich colors are usually desirable. Special lighting--direct, indirect, or shadowed--can be extremely effective in this kind of display. The beauty of the product is emphasized; the more attractive it can be made to appear, the greater the sales appeal.

Some items lend themselves to both functional and aesthetic display. These items should be treated with all the display skill that the parts man can muster, for they offer the greatest potential sales appeal. Both themes--usefulness and beauty--should be exploited to the fullest.

Display Staging

Staging a display demands a place and a theme. The place must be prominent; people must be able to see it (but not stumble over it). The theme is a little more complicated. Is it a direct sales appeal, or an interest theme? Is it a theme relating several items, such as a seasonal display? What is the selling point, beauty or usefulness?

Once the location and theme are chosen, the job is half-finished. A sketch should be prepared. All the materials should be gathered at hand and the display area thoroughly cleaned. Any pedestals, stands, drapes, or coverings to be used are arranged first. If the merchandise has no related theme, the items may be tried in various patterns until balance is achieved. Special lighting is then provided where needed.

Related themes require special attention. Certain items should be grouped. For example, in a spring tune-up theme the spark plugs, ignition wires, ignition coil, distributor cap, condenser, points, and rotor are a coherent group. Interest themes, such as the transmission display mentioned earlier, provide an effective display only if accurately grouped. Balance and "sight" appeal should always be sought.

Display Maintenance

Displays must be cleaned regularly and realigned frequently. If displays are open, people are bound to handle them. A display should not be left out too long. When interest begins to fade, the display should be changed.

Study Assignment

1. Look up the following words in an unabridged dictionary:

   functional aesthetic staged symmetry prominent

   From the dictionary definition of each word formulate a simple, easily remembered definition that applies to displays.

2. Plan and sketch a large display, using as many of the ideas from this unit as you can. On the back of the sketch, explain briefly your reasons for staging the display as you did. Show the work to your instructor; then show it to your employer. Discuss with your employer the possibility of actually building the display.

UNIT F--DISPLAYS THAT SELL

TOPIC 2--HOW TO DISPLAY - Study Guide and Test

Study Guide

After you have studied the material in the workbook and the assigned material, complete the exercises as follows: (1) select the word that belongs in each numbered space in an exercise; and (2) write the word at the right in the space that has the same number as the space in the exercise.

1. A(n) ____1____ display points out the utility and usefulness of a product. 1. ____________
2. ____2____ display emphasizes the beauty of the product. 2. ____________
3. A(n) ____3____ display has a definite plan. 3. ____________
4. A certain visual "balance" among the products displayed is called ____4____. 4. ____________
5. A displayed item should occupy a place of ____5____, in both its setting and its ____6____. 5. ____________ 6. ____________
6. ____7____ ____8____ is a key to good display. 7. ____________ 8. ____________
7. The nature of the product displayed will determine whether a ____9____ or ____10____ theme, or both, should be stressed. 9. ____________ 10. ____________
8. It is not a good idea to ____11____ the counter top. 11. ____________
9. Before a display is begun, the ____12____ that the items offer should be determined. 12. ____________
10. Staging a display demands a ____13____ and a ____14____. 13. ____________ 14. ____________

Test

Read each statement and decide whether it is true or false. Circle T if the statement is true; circle F if the statement is false.

1. Intuition plays a part in making a good display. 1. T F
2. If one has a "feel" for a good display, words cannot help him to understand the subject. 2. T F

3. Aesthetic display stresses beauty of form or finish. 3. T F

4. A staged display should have a random arrangement. 4. T F

5. Symmetry can involve either physical or visual balance. 5. T F

6. Staging, symmetry, and prominence can all be included in the same display. 6. T F

7. Clutter reduces the effectiveness of a display. 7. T F

8. The more displays that can be set up in a store area, the more customers will be persuaded to buy. 8. T F

9. All parts of a display should support its theme. 9. T F

10. Usefulness and beauty can both be exploited in a single display. 10. T F

11. A display can be effectively staged anywhere in the salesroom. 11. T F

12. Displays in open areas should be cleaned and realigned frequently. 12. T F

REQUIRED INSTRUCTIONAL MATERIALS

Auto Mechanics, Parts 1-4 (Workbooks, latest editions). Sacramento: California State Department of Education, 1962, 1963, 1966.

Auto Parts Man (Workbook and Testbook). Sacramento: California State Department of Education, 1967.

Automobile Facts & Figures. Detroit: Automobile Manufacturers Association, Inc., 1966.

Automotive and Marine Catalog with Prices and the Index Story, No. 65. Tampa, Fla.: Weatherly Index Co., 1965.

Crouse, William H., *Automotive Mechanics* (Fifth edition). New York: McGraw-Hill Book Co., 1965.

The Retail Automobile Business. Detroit: General Motors Corp., 1966.

Weatherly Index (Eighteenth edition). Tampa: Weatherly Index Co., 1964.

What it Takes to Make Your Car. Detroit: Automobile Manufacturers Association, Inc., 1964.

All of the references above are used in this course, and the latest edition of each should be available to each apprentice.

TEST SCORE IN PERCENT

Number of Test Questions

Number of Correct Answers	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	25	20	17	14	13	11	10	9	8	8	7	7	6	6	6	5	5
2	50	40	33	28	25	22	20	18	17	15	14	13	13	12	11	11	10
3	75	60	50	42	38	33	30	27	25	23	21	20	19	18	17	16	15
4	100	80	67	57	50	44	40	36	33	31	29	27	25	23	22	21	20
5		100	84	71	63	56	50	46	42	38	36	33	31	29	28	26	25
6			100	85	75	67	60	55	50	46	43	40	38	35	33	32	30
7				100	88	78	70	64	58	54	50	47	44	41	39	37	35
8					100	89	80	73	67	61	57	53	50	47	44	42	40
9						100	90	82	75	69	64	60	56	53	50	48	45
10							100	91	83	77	72	67	63	59	56	53	50
11								100	92	85	79	73	69	65	61	58	55
12									100	93	86	80	75	71	67	63	60
13										100	93	87	81	77	72	68	65
14											100	93	88	82	78	74	70
15												100	94	88	84	79	75
16													100	94	89	84	80
17														100	95	90	85
18															100	95	90
19																100	95
20																	100